Fishery Manuscript Series No. 18-04

Summary of Pacific Salmon Escapement Goals in Alaska with a Review of Escapements from 2009 to 2017

by

Andrew R. Munro

September 2018

Alaska Department of Fish and Game **Divisions of Sport Fish and Commercial Fisheries**

Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the Système International d'Unités (SI), are used without definition in the following reports by the Divisions of Sport Fish and of Commercial Fisheries: Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, and Special Publications. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

Weights and measures (metric)

centimeter	cm
deciliter	dL
gram	g
hectare	ha
kilogram	kg
kilometer	km
liter	L
meter	m
milliliter	mL
millimeter	mm

Weights and measures (English)

cubic feet per second	ft^3/s
foot	ft
gallon	gal
inch	in
mile	mi
nautical mile	nmi
ounce	oz
pound	lb
quart	qt
yard	yd

Time and temperature

day	d
degrees Celsius	°C
degrees Fahrenheit	°F
degrees kelvin	K
hour	h
minute	min
second	s

Physics and chemistry

all atomic symbols	
alternating current	AC
ampere	A
calorie	cal
direct current	DC
hertz	Hz
horsepower	hp
hydrogen ion activity (negative log of)	pH
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

General

Alaska Administrative Code	AAC
all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.
all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.
at	@
compass directions:	
east	E
north	N
south	S
west	W
copyright	©
corporate suffixes:	
Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.
District of Columbia	D.C.
et alii (and others)	et al.
et cetera (and so forth)	etc.
exempli gratia (for example)	e.g.
Federal Information Code	FIC
id est (that is)	i.e.
latitude or longitude	lat or long
monetary symbols (U.S.)	$, ¢
months (tables and figures): first three letters	Jan,...,Dec
registered trademark	®
trademark	™
United States (adjective)	U.S.
United States of America (noun)	USA
U.S.C.	United States Code
U.S. state	use two-letter abbreviations (e.g., AK, WA)

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations	
alternate hypothesis	H_A
base of natural logarithm	*e*
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, χ^2, etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	°
degrees of freedom	df
expected value	*E*
greater than	>
greater than or equal to	≥
harvest per unit effort	HPUE
less than	<
less than or equal to	≤
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	$\log_2$, etc.
minute (angular)	'
not significant	NS
null hypothesis	H_O
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	"
standard deviation	SD
standard error	SE
variance	
population	Var
sample	var

FISHERY MANUSCRIPT SERIES NO. 18-04

SUMMARY OF PACIFIC SALMON ESCAPEMENT GOALS IN ALASKA WITH A REVIEW OF ESCAPEMENTS FROM 2009 TO 2017

by
Andrew R. Munro
Alaska Department of Fish and Game, Division of Commercial Fisheries, Anchorage

Alaska Department of Fish and Game
Division of Sport Fish, Research and Technical Services
333 Raspberry Road, Anchorage, Alaska, 99518-1565

September 2018

The Fishery Manuscript Series was established in 1987 by the Division of Sport Fish for the publication of technically-oriented results of several years' work undertaken on a project to address common objectives, provide an overview of work undertaken through multiple projects to address specific research or management goal(s), or new and/or highly technical methods, and became a joint divisional series in 2004 with the Division of Commercial Fisheries. Fishery Manuscripts are intended for fishery and other technical professionals. Fishery Manuscripts are available through the Alaska State Library and on the Internet: http://www.adfg.alaska.gov/sf/publications/. This publication has undergone editorial and peer review.

Andrew R. Munro
Alaska Department of Fish and Game, Division of Commercial Fisheries,
333 Raspberry Road, Anchorage, Alaska 99518, USA

This document should be cited as follows:
Munro, A. R. 2018. Summary of Pacific salmon escapement goals in Alaska with a review of escapements from 2009 to 2017. Alaska Department of Fish and Game, Fishery Manuscript Series No. 18-04, Anchorage.

TABLE OF CONTENTS

Page

LIST OF TABLES

Table **Page**

LIST OF TABLES (Continued)

LIST OF FIGURES

LIST OF APPENDICES

ABSTRACT

This report summarizes statewide Pacific salmon escapement goals in effect in 2017 and documents escapements for all species and stocks with goals from 2009 through 2017. Annual escapements are compared against escapement goals in place at the time to assess outcomes, with summaries by the Division of Commercial Fisheries regions. We list methods used to enumerate escapements and to develop current escapement goals (with brief descriptions) for each monitored stock. Escapement goals were reviewed for Upper Cook Inlet, Lower Cook Inlet, and Kodiak management areas leading up to the 2016/2017 Board of Fisheries meeting cycle. As a result of these reviews, there were 53 escapement goal changes in 2017, including the elimination of 2 goals, establishment of 2 new goals, and the replacement of the Kenai River early- and late-run Chinook salmon goals based on all fish with escapement goals based on large fish only. In addition, two Optimal Escapement Goals were removed from management plans by the Alaska Board of Fisheries. In 2017, 83% of the escapement goals were met or exceeded and 17% of the stocks did not meet minimum escapement goals.

Key words: escapement, escapement goals, Chinook salmon, sockeye salmon, coho salmon, pink salmon, chum salmon, Alaska Board of Fisheries, BOF, statewide, Alaska

INTRODUCTION

Scientifically defensible Pacific salmon escapement goals are a central tenet of fisheries management in Alaska. Escapement goals are founded in the sustained yield principle highlighted in the State of Alaska Constitution (Article VIII, section 4) and in state statute (AS 16.05.020). Several policies in Alaska Administrative Code also provide guidance for establishing escapement goals including the policy for the management of sustainable salmon fisheries (5 AAC 39.222), the policy for statewide salmon escapement goals (5 AAC 39.223), and the policy for the management of mixed stock fisheries (5 AAC 39.220). These policies provide detailed definitions of specific escapement goal types, outline the responsibilities of the Alaska Department of Fish and Game (ADF&G) and the Alaska Board of Fisheries (BOF) in establishing goals, and provide general direction for development and application of escapement goals in Alaska. Currently, there are 287 active salmon stock escapement goals throughout the state of Alaska (Figure 1).

It is the responsibility of ADF&G to document, establish, and review escapement goals; prepare scientific analyses in support of escapement goals; notify the public when escapement goals are established or modified; and notify the BOF of allocative implications associated with escapement goals. The foundation for this effort is the regional or area escapement goal review teams that are assembled every 3 years to review goals, recommend changes, establish new goals, or eliminate goals. The teams have broad expertise in biological characteristics of salmon stocks and technical approaches for establishing goals. Scientific staff from headquarters may assist regional teams to address issues of general importance for escapement goal development and application in Alaska. A detailed regional report of escapement goal recommendations is presented to the BOF and the public at tri-annual BOF meetings for that region or area. Following the BOF meeting, recommended goals are presented to the directors of the Divisions of Commercial Fisheries and Sport Fish for approval.

Although development of escapement goals is exhaustively detailed in regional and area reports and supporting documents (e.g., stock-specific reports), this statewide summary report allows readers to examine the goals and escapements for salmon stocks in a single document. It provides an overview of salmon stocks with escapement goals, a numerical description of the escapement goal, type of escapement goal, year the current escapement goal was first implemented, and recent years' escapement data for each stock. In addition, statistics

documenting work done to achieve escapement goals is summarized and presented, and a statewide summary of stocks with yield or management concerns is included, as recommended by the ADF&G and established by the BOF. Data presented in this document are the most recently available at the time of publication and supersede data in previous annual statewide escapement reports. This report is intended to be a resource for ADF&G staff, stakeholders, and the public.

METHODS

We reviewed ADF&G escapement goal reports and supporting documents to catalog current escapement goals in each region for all 5 species of Pacific salmon, including information on stock name, type of goal, numerical description of the goal, and the year it was implemented (i.e., the first season that the goal was used to manage escapements). Regional and area staff from the Divisions of Commercial Fisheries and Sport Fish provided the most current escapement estimates from 2009 through 2017 for each stock with an established escapement goal. The escapement goals listed are those in effect during the 2017 spawning season, including escapement goals that were established or updated during the 2016/2017 BOF meeting cycle (Appendix A).

Escapements from 2009 through 2017 were compared against escapement goals in place at the time of enumeration to assess outcomes in achieving goals. Escapements for a particular stock were classed as *Under* if escapement for a given year was less than the lower bound of the escapement goal. If escapement fell within the escapement goal range or was greater than a lower-bound goal, we considered the goal *Met*. Where escapement exceeded the upper bound of an escapement goal range, it was classed as *Over*. Where escapement goals or enumeration methods changed between 2009 and 2017 for a stock, we assessed outcomes by comparing escapement estimates with the goals and methods in place at the time of the fishery. Information on previous escapement goals and methods came from a detailed review of regional escapement goal reports, supporting documents, and conversations with regional and area biologists.

A variety of methods are used to develop escapement goals in Alaska and brief descriptions of each are summarized below. The most commonly used methods are listed first, followed by the less common methods.

Percentile Method: A method for establishing sustainable escapement goals (SEG) was originally developed by Bue and Hasbrouck[1] and evaluated by Clark et al. (2014). Contrast of the observed annual escapements (largest escapement divided by smallest escapement), measurement error in escapements, and estimated exploitation rate of the stock are used to select percentiles of observed escapements that are used to establish lower and upper bounds of the escapement goal.

Spawner–Recruit Analysis (SRA): Analysis of the relationship between escapement (number of spawners) and subsequent production of recruits (i.e., adult returns) in the next generation. There are several SRA models, but the Ricker production model (Ricker 1954) is almost exclusively used for salmon populations in Alaska.

[1] Bue, B. G., and J. J. Hasbrouck. Escapement goal review of salmon stocks of Upper Cook Inlet. Alaska Department of Fish and Game, Report to the Alaska Board of Fisheries, November 2001 (and February 2002), Anchorage, unpublished document.

Risk Analysis: Risks of management error, an unneeded management action, or mistaken inaction in future years are estimated based on a precautionary reference point established using past observations of escapement (Bernard et al. 2009). This method is primarily used to guide establishment of a lower-bound SEG for nontargeted stocks of salmon.

Yield Analysis: Graphical or tabular examination of yields produced from observed escapement indices from which the escapement range with the greatest yields is identified (Hilborn and Walters 1992).

Theoretical Spawner–Recruit Analysis (Theoretical SRA): Used in situations where there are few or no stock-specific harvest estimates and/or age data. Information from nearby stocks, or generalizations about the species, are used in a spawner–recruit production model to estimate the number of spawners needed to achieve maximum sustained yield, e.g., Clark (2005).

Empirical Observation: Goal development methods classified as *Empirical Observation* are generally *ad hoc* methods for stocks with limited or sparse data. Goals are based on observed escapements over time and may be calculated as the average escapement or the value of a low escapement for which there is evidence that the stock is able to recover, e.g., Norton Sound pink salmon *Oncorhynchus gorbuscha* escapement goals (ADF&G 2004).

Zooplankton Model: This model estimates the number of sockeye salmon *O. nerka* smolts of a threshold or optimal size that a lake can support based upon measures of zooplankton biomass and surface area of the lake (Koenings and Kyle 1997). Adult production is then estimated from predicted smolt production by applying marine survival rates for a range of smolt sizes.

Spawning Habitat Model: Estimates of spawning capacity or number of spawners that produce maximum sustained yield are based on the relationship with the watershed area, available spawning habitat in a drainage, or stream length. Spawning habitat models have been developed for sockeye salmon (Burgner et al. 1969), coho salmon *O. kisutch* (Bradford et al. 1999; Bradford et al. 1997), and Chinook salmon *O. tshawytscha* (Parken et al. 2004).

Euphotic Volume (EV) Model: Measurement of the volume of a lake where enough light penetrates to support primary production (i.e., euphotic volume) is used to estimate sockeye salmon smolt biomass (Koenings and Burkett 1987) from which adult escapement is then estimated using marine survival rates.

Lake Surface Area: Similar to spawning habitat models, the relationship between the lake surface area and escapement are used to estimate adult sockeye salmon production (Honnold et al. 1996; Nelson et al. 2006).

Brood Interaction Simulation Model: This model simulates production using a spawner–recruit relationship that modifies the simulated production for the year of return using an age-structured submodel, and estimates resulting catches and escapements under user-specified harvest strategies (Carlson et al. 1999). This is a hybrid of a theoretical SRA and yield analysis that has only been used to develop the escapement goal for Kenai River sockeye salmon.

Conditional Sustained Yield Analysis: Observed escapement indices and harvest are used to estimate if, on average, surplus production (yield) results from a particular goal range (Nelson et al. 2005). Estimated expected yields are conditioned on extreme values of measurement error in the escapement indices. Currently, there are no escapement goals in Alaska based on this method.

RESULTS AND DISCUSSION

Summaries of estimated escapements and escapement goals for each monitored salmon stock from 2009 to 2017 are presented by region and species in Tables 1–4. Although most information was available through regional, area, and stock-specific escapement goal reports, 2017 data were primarily obtained directly from area and regional biologists. Data for 2017 are often preliminary estimates because complete data regarding subsistence and sport harvests are often not available immediately following the season.

During the 2016/2017 BOF meeting cycle, Upper Cook Inlet, Lower Cook Inlet, and Kodiak management areas reviewed their escapement goals (Erickson et al. 2017; Otis et al. 2016; Schaberg et al. 2016). There were 53 escapement goal changes (Table 5), which included the elimination of 2 goals in the Kodiak Management Area, the establishment of 2 new goals in Upper Cook Inlet, and the replacement of the Kenai River early- and late-run Chinook salmon goals based on all fish with escapement goals based on large fish only (75 cm mid eye to fork length). Many of the goal changes were in Lower Cook Inlet, where escapement goals are primarily based on the percentile method and have not been changed since they were established in 2002. This recent review re-examined the goals using the recommendations from Clark et al. (2014) and made changes as needed. In addition to goal changes by ADF&G, two Optimal Escapement Goals were removed from management plans by the Alaska Board of Fisheries (Kenai River sockeye salmon, and Upper Station early-run sockeye salmon).

A summary of escapement goal types for all salmon species by region indicate that the majority of goals in Central, Westward, and Arctic-Yukon-Kuskokwim regions are SEGs, including lower-bound SEGs, with biological escapement goals (BEGs) making up a smaller proportion of goals (Figure 1a). The reverse is true for Southeast Region, where most goals are BEGs. Escapement goals for sockeye and Chinook salmon make up about 50% of all escapement goals statewide, with the majority of goals for each species being SEGs (Figure 1b). Optimal escapement goals (OEG) and inriver goals established by the BOF, and goals based upon international agreements, collectively represent a small proportion of escapement goals in Alaska.

Use of different escapement goal types for each salmon species is summarized by Division of Commercial Fisheries regions (Figures 2–5). Among the 4 regions, there are some distinct differences in the distribution of goal types by salmon species. In Southeast Region, the majority of goals are BEGs, which include all but 1 pink salmon goal, all but 1 Chinook salmon goal, 71% of the coho salmon goals, and 43% of the sockeye salmon goals (Figure 2). This is sharply contrasted with Central Region, where the majority of all goals are SEGs, with 2 sockeye salmon stocks representing the only BEGs (Figure 3). Arctic-Yukon-Kuskokwim Region has the only BEGs for chum salmon (*O. keta*) in the state, with additional BEGs for 3 Chinook and 1 sockeye salmon stock (Figure 4). All Chinook salmon stocks in Westward Region are BEGs, but compared to Southeast, a much smaller proportion of coho and sockeye salmon goals are BEGs (Figure 5). These are broad generalizations that are immediately apparent, but there are many reasons why the distribution of goal types would be different between regions, including fishery structure, stock assessment capacity, and technical approaches.

Summary comparisons of estimated escapements with escapement goals in place at the time are shown in Tables 6–9, highlighting whether the goal was exceeded, met, or not met. Numerous footnotes in Tables 1–4 and 6–9 contain important information about changes in stock

assessment methods or goal ranges during the specified years and are essential for a thorough understanding of the escapement estimates and evaluations of outcomes in comparison to goals. Summaries of outcomes in achieving goals are presented by species (Tables 10–13) and region (Tables 14–17; Figures 6–9). Patterns in achieving escapement goals from year to year have varied within each region (Tables 14–17; Figures 6–9). In 2017, 50% of the stocks assessed had escapements that were within the goal range (or above the lower bound if a lower-bound SEG), which is within the observed range for recent years (48–59%; Figure 10a). The percentage of goals where minimum escapement was not achieved in 2017 was 17%—an improvement from 28% in 2016, and within the range of recent years (11–31%; Figure 10b). The remaining 33% of the goals were exceeded in 2017, which was an increase from 24% in 2016 and within the recent range (13–40%; Figure 10c).

It is important to document outcomes for meeting these escapement goals, which are fundamental to ADF&G efforts to manage for sustainable salmon stock productivity. Where escapements chronically (4–5 years) fail to meet expectations for harvestable yield or spawning escapements, ADF&G may recommend—and the BOF may adopt—a *stock of concern* designation for those underperforming salmon stocks. The policy for the management of sustainable salmon fisheries (5 AAC 39.222) provides specific definitions for stocks of concern. *Yield concerns* arise from a chronic inability to maintain expected yields or harvestable surpluses above escapement needs. *Management concerns* are precipitated by a chronic failure to maintain escapements within the bounds, or above the lower bound of the established goal. A *conservation concern* may arise from a failure to maintain escapements above a sustained escapement threshold. Methods to develop stock-specific sustained escapement thresholds, as defined in the sustainable salmon fisheries policy, are not well developed for Pacific salmon, and no sustained escapement thresholds or stocks of conservation concern exist in Alaska. In 2017 there were 18 stocks of concern in the state. McNeil River chum salmon was added as a stock of management concern in the 2016/2017 BOF cycle. During the 2017/2018 BOF cycle, 3 Southeast Alaska Chinook salmon stocks were listed as management concerns and McDonald Lake sockeye salmon was relisted as a stock of management concern after being delisted in 2012 (Table 18).

The array of methods used to enumerate salmon for each of the stocks with escapement goals, as well as methods used to assist ADF&G staff in developing the escapement goal for a given stock, are summarized by region in Tables 19–22.

ACKNOWLEDGEMENTS

Thank you to the many staff members from the Divisions of Commercial Fisheries and Sport Fish who assisted with providing updates to the escapement numbers and for reviewing earlier drafts of the tables for accuracy and completeness. From Southeast Region we thank Steve Heinl. From Central Region we thank Jack Erickson, Stormy Haught, Ted Otis, and Tim McKinley. From Arctic-Yukon-Kuskokwim Region we thank Zach Liller and Katie Howard, and from Westward Region we thank Kevin Schaberg. Thank you also to Bill Templin and Rich Brenner for reviewing a draft of this report.

REFERENCES CITED

ADF&G (Alaska Department of Fish and Game). 2004. Escapement goal review of select AYK Region salmon stocks. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A04-01, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/RIR.3A.2004.01.pdf

Baker, T. T., L. F. Fair, R. A. Clark, and J. J. Hasbrouck. 2006. Review of salmon escapement goals in Bristol Bay, Alaska, 2006. Alaska Department of Fish and Game, Fishery Manuscript Series No. 06-05, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms06-05.pdf

Baker, T. T., L. F. Fair, F. W. West, G. B. Buck, X. Zhang, S. Fleischman, and J. Erickson. 2009. Review of salmon escapement goals in Bristol Bay, Alaska, 2009. Alaska Department of Fish and Game, Fishery Manuscript Series No. 09-05, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/FMS09-05.pdf

Bernard, D. R., J. J. Hasbrouck, B. G. Bue, and R. A. Clark. 2009. Estimating risk of management error from precautionary reference points (PRPs) for non-targeted salmon stocks. Alaska Department of Fish and Game, Special Publication No. 09-09, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/SP09-09.pdf

Bernard, D. R., and E. L. Jones III. 2010. Optimum escapement goals for Chinook salmon in the transboundary Alsek River. Alaska Department of Fish and Game, Fishery Manuscript Series No. 10-02, Anchorage.

Bernard, D. R., S. A. McPherson, K. A. Pahlke, and P. Etherton. 2000. Optimal production of Chinook salmon from the Stikine River. Alaska Department of Fish and Game, Fishery Manuscript Series No. 00-01, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms00-01.pdf

Bradford, M. J., R. A. Myers, and J. R. Irvine. 1999. Reference points for coho salmon (*Oncorhynchus kisutch*) harvest rates and escapement goals based on freshwater production. Canadian Journal of Fish and Aquatic Science 57:677–686.

Bradford, M. J., G. C. Taylor, and J. A. Allan. 1997. Empirical review of coho salmon smolt abundance and the prediction of smolt production at the region level. Transactions of the American Fisheries Society 126:49–64.

Brannian, L. K., M. J. Evenson, and J. R. Hilsinger. 2006. Escapement goal recommendations for select Arctic-Yukon-Kuskokwim region salmon stocks, 2007. Alaska Department of Fish and Game, Fishery Manuscript Series No. 06-07, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms06-07.pdf

Bue, B. G., J. J. Hasbrouck, and M. J. Evenson. 2002. Escapement goal review of Copper River and Bering Rivers, and Prince William Sound Pacific salmon stocks. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A02-35, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/RIR.2A.2002.35.PDF

Bue, B. G., K. L. Schaberg, Z. W. Liller, and D. B. Molyneaux. 2012. Estimates of the historic run and escapement for the Chinook salmon stock returning to the Kuskokwim River, 1976-2011. Alaska Department of Fish and Game, Fishery Data Series No. 12-49, Anchorage.

Burgner, R. L., C. J. D. Costanzo, R. J. Ellis, G. Y. Harry, Jr., W. L. Hartman, O. E. Kerns, Jr., O. A. Mathison, and W. F. Royce. 1969. Biological studies and estimates of optimum escapements of sockeye salmon in the major river systems of Southwestern Alaska. Fishery Bulletin 67:405–459.

Carlson, S. R., K. E. Tarbox, and B. G. Bue. 1999. The Kenai sockeye salmon simulation model: A tool for evaluating escapement and harvest levels. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A99-08, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/RIR.2A.1999.08.pdf

Clark, J. E., J. H. Clark, and L. D. Shaul. 1994. Escapement goals for coho salmon stocks returning to Berners River, Auke Creek, Ford Arm Lake, and Hugh Smith Lake in Southeast Alaska. Alaska Department of Fish and Game, Division of Commercial Fisheries Management and Development, Regional Information Report 1J94-26, Douglas. http://www.sf.adfg.state.ak.us/FedAidPDFs/RIR.1J.1994.26.pdf

Clark, J. H. 2001a. Biological escapement goals for chum salmon in Subdistrict One of Norton Sound. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A01-09, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/RIR.3A.2001.09.pdf

REFERENCES CITED (Continued)

Clark, J. H. 2001b. Biological escapement goals for Kwiniuk and Tubutulik chum salmon. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A01-08, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/RIR.3A.2001.08.pdf

Clark, J. H., and J. E. Clark. 1994. Escapement goals for Yakutat area coho salmon stocks. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J94-14, Douglas. http://www.sf.adfg.state.ak.us/FedAidPDFs/RIR.1J.1994.14.pdf

Clark, J. H., D. M. Eggers, and J. A. Edmundson. 2007. Escapement goal review for Kenai River late-run sockeye salmon: Report to the Alaska Board of Fisheries, January 2005. Alaska Department of Fish and Game, Special Publication No. 07-12, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/sp07-12.pdf

Clark, J. H., S. A. McPherson, and D. M. Gaudet. 1998. Biological escapement goal for Andrew Creek Chinook salmon. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 5J98-08, Juneau. http://www.sf.adfg.state.ak.us/FedAidPDFs/RIR.5J.1998.08.pdf

Clark, J. H., S. A. McPherson, and G. F. Woods. 2002. Biological escapement goal for sockeye salmon in the Situk River, Yakutat, Alaska. Alaska Department of Fish and Game, Special Publication No. 02-03, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/sp02-03.pdf

Clark, J. H., G. F. Woods, and S. Fleischman. 2003. Revised biological escapement goal for the sockeye salmon stock returning to the East Alsek-Doame river system of Yakutat, Alaska. Alaska Department of Fish and Game, Special Publication No. 03-04, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/sp03-04.pdf

Clark, R. A. 2005. Stock status and recommended escapement goals for coho salmon in selected waters along the Juneau road system, 1981-2004. Alaska Department of Fish and Game, Special Publication No. 05-21, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/sp05-21.pdf

Clark, R. A., D. M. Eggers, A. R. Munro, S. J. Fleischman, B. G. Bue, and J. J. Hasbrouck. 2014. An evaluation of the percentile approach for establishing sustainable escapement goals in lieu of stock productivity information. Alaska Department of Fish and Game, Fishery Manuscript Series No. 14-06, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS14-06.pdf

Conitz, J. M., K. G. Howard, and M. J. Evenson. 2015. Escapement goal recommendations for select Arctic-Yukon-Kuskokwim Region salmon stocks, 2016. Alaska Department of Fish and Game, Fishery Manuscript Series No. 15-08, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS15-08.pdf

Der Hovanisian, J. 2013. Escapement goal for Klawock River coho salmon. Alaska Department of Fish and Game, Fishery Manuscript Series No. 13-09, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS13-09.pdf

Eggers, D. M. 2001. Biological escapement goals for Yukon River Fall chum salmon. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A01-10, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/RIR.3A.2001.10.pdf

Eggers, D. M., R. L. Bachman, and J. Stahl. 2010. Stock status and escapement goals for Chilkat Lake sockeye salmon in Southeast Alaska. Alaska Department of Fish and Game, Fishery Manuscript Series No. 10-05, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/Fms10-05.pdf

Eggers, D. M., and D. R. Bernard. 2011. Run reconstruction and escapement goals for Alsek River sockeye salmon. Alaska Department of Fish and Game, Fishery Manuscript Series No. 11-01, Anchorage.

Eggers, D. M., and J. H. Clark. 2006. Assessment of historical runs and escapement goals for Kotzebue area chum salmon. Alaska Department of Fish and Game, Fishery Manuscript Series No. 06-01, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms06-01.pdf

Eggers, D. M., J. H. Clark, R. L. Bachman, and S. C. Heinl. 2008. Sockeye salmon stock status and escapement goals in Southeast Alaska. Alaska Department of Fish and Game, Special Publication No. 08-17, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/sp08-17.pdf

REFERENCES CITED (Continued)

Eggers, D. M., and S. C. Heinl. 2008. Chum salmon stock status and escapement goals in Southeast Alaska. Alaska Department of Fish and Game, Special Publication No. 08-19, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/sp08-19.pdf

Eggers, D. M., S. C. Heinl, and A. W. Piston. 2009a. McDonald Lake sockeye salmon stock status and escapement goal recommendations, 2008. Alaska Department of Fish and Game, Fishery Data Series No. 09-31, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/FDS09-31.pdf

Eggers, D. M., X. Zhang, R. L. Bachman, and M. M. Sogge. 2009b. Sockeye salmon stock status and escapement goals for Chilkoot Lake in Southeast Alaska. Alaska Department of Fish and Game, Fishery Data Series No. 09-63, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/FDS09-63.pdf

Erickson, J. W., C. E. Brazil, X. Zhang, T. R. McKinley, and R. A. Clark. 2015. Review of salmon escapement goals in Bristol Bay, Alaska, 2015. Alaska Department of Fish and Game, Fishery Manuscript Series No. 15-06, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS15-06.pdf

Ericksen, R. P., and S. J. Fleischman. 2006. Optimal production of coho salmon from the Chilkat River. Alaska Department of Fish and Game, Fishery Manuscript Series No. 06-06, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms06-06.pdf

Ericksen, R. P., and S. A. McPherson. 2004. Optimal production of Chinook salmon from the Chilkat River. Alaska Department of Fish and Game, Fishery Manuscript Series No. 04-01, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms04-01.pdf

Erickson, J. W., T. M. Willette, and T. McKinley. 2017. Review of salmon escapement goals in Upper Cook Inlet, Alaska, 2016. Alaska Department of Fish and Game, Fishery Manuscript No. 17-03, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS17-03.pdf

Evenson, M. J. 2002. Optimal production of Chinook salmon from the Chena and Salcha rivers. Alaska Department of Fish and Game, Fishery Manuscript Series No. 02-1, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms02-01.pdf

Evenson, M. J., J. J. Hasbrouck, S. D. Moffitt, and L. Fair. 2008. Escapement goal review for Copper River, Bering River, and Prince William Sound salmon stocks. Alaska Department of Fish and Game, Fishery Manuscript Series No. 08-01, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/fms08-01.pdf

Fair, L. F., B. G. Bue, R. A. Clark, and J. J. Hasbrouck. 2004. Spawning escapement goal review of Bristol Bay salmon stocks. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A04-17, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/RIR.2A.2004.17.pdf

Fair, L. F., C. E. Brazil, X. Zhang, R. A. Clark, and J. W. Erickson. 2012. Review of salmon escapement goals in Bristol Bay, Alaska, 2012. Alaska Department of Fish and Game, Fishery Manuscript Series No. 12-04, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS12-04.pdf

Fair, L. F., R. A. Clark, and J. J. Hasbrouck. 2007. Review of salmon escapement goals in Upper Cook Inlet, Alaska, 2007. Alaska Department of Fish and Game, Fishery Manuscript Series No. 07-06, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms07-06.pdf

Fair, L. F., S. D. Moffitt, M. J. Evenson, and J. Erickson. 2008. Escapement goal review of Copper and Bering rivers, and Prince William Sound Pacific salmon stocks, 2008. Alaska Department of Fish and Game, Fishery Manuscript Series No. 08–02, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms08-02.pdf

Fair, L. F., S. D. Moffitt, M. J. Evenson, and J. W. Erickson. 2011. Escapement goal review of Copper and Bering rivers, and Prince William Sound Pacific salmon stocks, 2011. Alaska Department of Fish and Game, Fishery Manuscript Series No. 11–07, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS11-07.pdf

Fair, L. F., T. M. Willette, and J. W. Erickson. 2013. Review of salmon escapement goals in Upper Cook Inlet, Alaska, 2013. Alaska Department of Fish and Game, Fishery Manuscript Series No. 13-13, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS13-13.pdf

REFERENCES CITED (Continued)

Fair, L. F., T. M. Willette, J. W. Erickson, R. J. Yanusz, and T. R. McKinley. 2010. Review of salmon escapement goals in Upper Cook Inlet, Alaska, 2011. Alaska Department of Fish and Game, Fishery Manuscript Series No. 10-06, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/FMS10-06.pdf

Fleischman, S. J., and B. M. Borba. 2009. Escapement estimation, spawner-recruit analysis, and escapement goal recommendation for fall chum salmon in the Yukon River drainage. Alaska Department of Fish and Game, Fishery Manuscript Series No. 09-08, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/FMS09-08.pdf

Fleischman, S. J., and D. Evenson. 2010. Run reconstruction, spawner-recruit analysis, and escapement goal recommendation for summer chum salmon in the East Fork of the Andreafsky River. Alaska Department of Fish and Game, Fishery Manuscript Series No. 10-04, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/FMS10-04.pdf

Fleischman, S. J., J. A. Der Hovanisian, and S. A. McPherson. 2011. Escapement goals for Chinook salmon in the Blossom and Keta rivers. Alaska Department of Fish and Game, Fishery Manuscript Series No. 11-05, Anchorage. http://www.adfg.alaska.gov/FedAidpdfs/FMS11-05.pdf

Fleischman S. J., and A. M. Reimer. 2017. Spawner-recruit analyses and escapement goal recommendations for Kenai River Chinook Salmon. Alaska Department of Fish and Game, Fishery Manuscript No. 17-02, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS17-02.pdf

Geiger, H. J. 2003. Sockeye salmon stock status and escapement goal for Redoubt Lake in Southeast Alaska. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J03-01, Juneau. http://www.sf.adfg.state.ak.us/FedAidPDFs/RIR.1J.2003.01.pdf

Geiger, H. J., T. P. Zadina, and S. C. Heinl. 2003. Sockeye salmon stock status and escapement goal for Hugh Smith Lake in Southeast Alaska. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J03-05, Juneau. http://www.sf.adfg.state.ak.us/FedAidPDFs/RIR.1J.2003.05.pdf

Hamazaki, T., and J. M. Conitz. 2015. Yukon River summer chum salmon run reconstruction, spawner-recruitment analysis, and escapement goal recommendation. Alaska Department of Fish and Game, Fishery Manuscript Series No. 15-07, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS15-07.pdf

Hamazaki, T., M. J. Evenson, S. J. Fleischman, and K. L. Schaberg. 2012. Spawner-recruit analysis and escapement goal recommendation for Chinook salmon in the Kuskokwim River Drainage. Alaska Department of Fish and Game, Fishery Manuscript Series No. 12-08, Anchorage.

Hasbrouck, J. J., and J. A. Edmundson. 2007. Escapement goals for salmon stocks in Upper Cook Inlet, Alaska: report to the Alaska Board of Fisheries, January 2005. Alaska Department of Fish and Game, Special Publication No. 07-10, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/sp07-10.pdf

Heinl, S. C., D. M. Eggers, and A. W. Piston. 2008. Pink salmon stock status and escapement goals in Southeast Alaska and Yakutat. Alaska Department of Fish and Game, Special Publication No. 08-16, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/sp08-16.pdf

Heinl, S. C., E. L. Jones III, A. W. Piston, P. J. Richards, and L. D. Shaul. 2014a. Review of salmon escapement goals in Southeast Alaska, 2014. Alaska Department of Fish and Game, Fishery Manuscript Series No. 14-07, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS14-07.pdf

Heinl, S. C., S. Miller, and J. A. Bednarski. 2014b. Speel Lake sockeye salmon stock status and escapement goal review. Alaska Department of Fish and Game, Fishery Manuscript Series No. 14-04, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS14-04.pdf

Hendrich, C. F., J. L. Weller, S. A. McPherson, and D. R. Bernard. 2008. Optimal production of Chinook salmon from the Unuk River. Alaska Department of Fish and Game, Fishery Manuscript Series No. 08-03, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms08-03.pdf

Hilborn, R., and C. J. Walters. 1992. Quantitative fisheries stock assessment: Choice, dynamics and uncertainty. Chapman and Hall, New York.

REFERENCES CITED (Continued)

Honnold, S. G., J. A. Edmundson, and S. Schrof. 1996. Limnological and fishery assessment of 23 Alaska Peninsula and Aleutian area lakes, 1993–1995: An evaluation of potential sockeye and coho salmon production. Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division, Regional Information Report 4K96-52, Kodiak. http://www.sf.adfg.state.ak.us/FedAidPDFs/rir.4k.1996.52.pdf

Honnold, S. G., M. J. Witteveen, M. B. Foster, I. Vining, and J. J. Hasbrouck. 2007a. Review of escapement goals for salmon stocks in the Kodiak Management Area, Alaska. Alaska Department of Fish and Game, Fishery Manuscript Series No. 07-10, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/fms07-10.pdf

Honnold, S. G., M. J. Witteveen, I. Vining, H. Finkle, M. B. Foster, and J. J. Hasbrouck. 2007b. Review of salmon escapement goals in the Alaska Peninsula Aleutian Islands Management Areas, 2006. Alaska Department of Fish and Game, Fishery Manuscript Series No. 07-02, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms07-02.pdf

Humphreys, R. D., S. M. McKinnel, D. Welch, M. Stocker, B. Turris, F. Dickson, and D. Ware, editors. 1994. Pacific Stock Assessment Review Committee (PSARC) Annual Report for 1993. Canadian Manuscript, Report of Fisheries and Aquatic Sciences, Number 2227.

JTC (Joint Technical Committee of the Yukon River US/Canada Panel). 2008. Yukon River salmon 2007 season summary and 2008 season outlook. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A08-01, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/RIR.3A.2008.01.pdf

JTC. 2010. Yukon River salmon 2009 season summary and 2010 season outlook. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A10-01, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/RIR.3A.2010.01

JTC. 2013. Yukon River salmon 2012 season summary and 2013 season outlook. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A13-02, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/RIR.3A.2013.02.pdf

JTC. 2015. Yukon River salmon 2014 season summary and 2015 season outlook. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A15-01, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/RIR.3A.2015.01.pdf

Koenings, J. P., and R. D. Burkett. 1987. Population characteristics of sockeye salmon (*Oncorhynchus nerka*) smolts relative to temperature regimes, euphotic volume, fry density, and forage base within Alaskan lakes. Pages 216–234 [*In*] H. D. Smith, L. Margolis, and C. C. Wood, editors. Sockeye salmon (*Oncorhynchus nerka*) population biology and future management. Canadian Journal of Fisheries and Aquatic Sciences Special Publication No. 96, Canada.

Koenings, J. P., and G. B. Kyle. 1997. Consequences to juvenile sockeye salmon and the zooplankton community resulting from intense predation. Alaska Fishery Research Bulletin 4(2):120–135.

McPherson, S. A., and J. Carlile. 1997. Spawner-recruit analysis of Behm Canal Chinook salmon stocks. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J97-06, Juneau. http://www.sf.adfg.state.ak.us/FedAidpdfs/RIR.1J.1997.06.pdf

McPherson, S., and J. H. Clark. 2001. Biologcial escapement goal for King Salmon River Chinook salmon. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J01-40, Juneau. http://www.adfg.alaska.gov/FedAidPDFs/RIR.1J.2001.40.pdf

McPherson, S. A., R. E. Johnson, and G. F. Woods. 2005. Optimal production of Chinook salmon from the Situk River. Alaska Department of Fish and Game, Fishery Manuscript Series No. 05-04, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/Fms05-04.pdf

McPherson, S. A., E. L. Jones III, S. J. Fleischman, and I. M. Boyce. 2010. Optimal production of Chinook salmon from the Taku River through the 2001 year class. Alaska Department of Fish and Game, Fishery Manuscript Series No. 10-03, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/Fms10-03.pdf

REFERENCES CITED (Continued)

Molyneaux, D. B., and L. K. Brannian. 2006. Review of escapement and abundance information for Kuskokwim area salmon stocks. Alaska Department of Fish and Game, Fishery Manuscript Series No. 06-08, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/fms06-08.pdf

Nelson, P. A., J. J. Hasbrouck, M. J. Witteveen, K. A. Bouwens, and I. Vining. 2006. Review of salmon escapement goals in the Alaska Peninsula and Aleutian Islands Management Areas. Report to the Alaska Board of Fisheries, 2004. Alaska Department of Fish and Game, Fishery Manuscript Series No. 06-03, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms06-03.pdf

Nelson, P. A., and D. S. Lloyd. 2001. Escapement goals for Pacific salmon in the Kodiak, Chignik, and Alaska Peninsula/Aleutian Islands Areas of Alaska. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 4K01-66, Kodiak. http://www.adfg.alaska.gov/FedAidPDFs/RIR.4K.2001.66.pdf

Nelson, P. A., M. J. Witteveen, S. G. Honnold, I. Vining, and J. J. Hasbrouck. 2005. Review of salmon escapement goals in the Kodiak Management Area. Alaska Department of Fish and Game, Fishery Manuscript Series No. 05-05, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms05-05.pdf

Nemeth, M. J., M. J. Witteveen, M. B. Foster, H. Finkle, J. W. Erickson, J. S. Schmidt, S. J. Fleischman, and D. Tracy. 2010. Review of escapement goals in 2010 for salmon stocks in the Kodiak Management Area, Alaska. Alaska Department of Fish and Game, Fishery Manuscript Series No. 10-09, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/FMS10-09.pdf

Otis, E. O., J. W. Erickson, C. Kerkvliet, and T. McKinley. 2016. A review of escapement goals for salmon stocks in Lower Cook Inlet, Alaska, 2016. Alaska Department of Fish and Game, Fishery Manuscript Series No. 16-08, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS16-08.pdf

Otis, E. O., and N. J. Szarzi. 2007. A review of escapement goals for salmon stocks in Lower Cook Inlet, Alaska, 2007. Alaska Department of Fish and Game, Fishery Manuscript Series No. 07-04, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/fms07-04.pdf

Otis, T. 2001. Report to the Alaska Board of Fisheries on sustainable escapement goals for chum, pink, and sockeye salmon in lower Cook Inlet. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A01-21, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/RIR.2A.2001.21.pdf

Parken, C., R. E. McNicol, and J. R. Irvine. 2004. Habitat-based methods to estimate escapement goals for Chinook salmon stocks in British Columbia. PSARC Working Papers, British Columbia, Canada.

Pestal, G., and S. Johnston. 2015. Estimates of a biologically-based spawning goal and biological benchmarks for the Canadian-origin Taku River coho stock aggregate. Fisheries and Oceans Canada, Canadian Science Advisory Secretariat 2015/048. http://www.dfo-mpo.gc.ca/csas-sccs/publications/resdocs-docrech/2015/2015_048-eng.pdf

Piston, A. W., and S. C. Heinl. 2011a. Chum salmon stock status and escapement goals in Southeast Alaska. Alaska Department of Fish and Game, Special Publication No. 11-21 Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/SP11-21.pdf

Piston, A. W., and S. C. Heinl. 2011b. Pink salmon stock status and escapement goals in Southeast Alaska. Alaska Department of Fish and Game, Special Publication No. 11-18, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/SP11-18.pdf

Piston, A. W., and S. C. Heinl. 2014. Chum salmon stock status and escapement goals in Southeast Alaska. Alaska Department of Fish and Game, Special Publication No. 14-13. http://www.adfg.alaska.gov/FedAidPDFs/SP14-13.pdf

Ricker, W. E. 1954. Stock and recruitment. Journal of Fisheries and Research Board of Canada 11:559–623.

Sagalkin, N. H., B. Foster, M. B. Loewen, and J. W. Erickson. 2013a. Review of salmon escapement goals in the Kodiak Management Area, 2013. Alaska Department of Fish and Game, Fishery Manuscript Series No. 13-11, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS13-11.pdf

REFERENCES CITED (Continued)

Sagalkin, N. H., A. St. Saviour, J. W. Erickson, and H. Finkle. 2013b. Review of salmon escapement goals in the Chignik Management Area, 2013. Alaska Department of Fish and Game, Fishery Manuscript Series No. 13-06, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS13-06.pdf

Savereide, J. W. 2001. An age structured model for assessment and management of Copper River Chinook salmon. Master's thesis, University of Alaska Fairbanks.

Schaberg, K. L., H. Finkle, M. B. Foster, D. L. Tracy, and M. L. Wattum. 2015a. Review of salmon escapement goals in the Alaska Peninsula and Aleutian Islands Management Areas, 2015. Alaska Department of Fish and Game, Fishery Manuscript Series No. 15-03, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS15-03.pdf

Schaberg, K. L., M. B. Foster, M. Wattum, and T. R. McKinley. 2016. Review of salmon escapement goals in the Kodiak Management Area, 2016. Alaska Department of Fish and Game, Fishery Manuscript Series No. 16-09, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS16-09.pdf

Schaberg, K. L., D. A. Tracy, M. B. Foster, and M. Loewen. 2015b. Review of salmon escapement goals in the Chignik Management Area, 2015. Alaska Department of Fish and Game, Fishery Manuscript Series No. 15-02, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS15-02.pdf

Schmidt, J., T. Polum, and D. Evans. 2014. Stock assessment of Buskin River coho salmon, 2008-2010. Alaska Department of Fish and Game, Fishery Data Series No. 14-41, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FDS14-41.pdf

Shaul, L. D., K. F. Crabtree, M. Kemp, and N. Olmsted. 2009. Coho salmon studies at Hugh Smith Lake, 1982–2007. Alaska Department of Fish and Game, Fishery Manuscript Series No. 09-04, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/FMS09-04.pdf

Shaul, L. D., K. F. Crabtree, K. C. Koolmo, K. M. Koolmo, J. V. Nichols, and H. J. Geiger. 2014. Studies of coho salmon and other *Oncorhynchus* species at Ford Arm Creek, 1982–2009. Alaska Department of Fish and Game, Fishery Manuscript Series No. 14-02, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS14-02.pdf

Shaul, L. D., and T. A. Tydingco. 2006. Escapement goals for coho salmon counted in aggregate surveys in the Ketchikan and Sitka areas. Alaska Department of Fish and Game, Special Publication No. 06-11, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/sp06-11.pdf

TTC (Transboundary Technical Committee). 1986. Report of the Canada/United States Transboundary Technical Committee, Final Report. TCTR (86).

TTC. 1987. Stikine River sockeye salmon management plan, 1987. Pacific Salmon Commission Report TCTR (87)-1, Vancouver.

TTC. 1990. Long-term research plans for the transboundary rivers. Pacific Salmon Commission Report TCTR (90)-3.

TTC. 1993. Salmon management and enhancement plans for the Stikine, Taku, and Alsek rivers, 1993. Pacific Salmon Commission Report TCTR (93)-2, Vancouver.

TTC. 2014. Salmon management and enhancement plans for the Stikine, Taku and Alsek rivers, 2013. Pacific Salmon Commission Report TCTR 14-1. http://www.psc.org/pubs/TCTR14-1.pdf

Volk, E., M. J. Evenson, and R. A. Clark. 2009. Escapement goal recommendations for select Arctic-Yukon-Kuskokwim Region salmon stocks, 2010. Alaska Department of Fish and Game, Fishery Manuscript Series No. 09-07, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/FMS09-07.pdf

Witteveen, M. J., H. Finkle, J. J. Hasbrouck, and I. Vining. 2007. Review of salmon escapement goals in the Chignik Management Area, 2007. Alaska Department of Fish and Game, Fishery Manuscript Series No. 07-09, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/fms07-09.pdf

REFERENCES CITED (Continued)

Witteveen, M. J., H. Finkle, M. Loewen, M. B. Foster, and J. W. Erickson. 2009. Review of salmon escapement goals in the Alaska Peninsula and Aleutian Islands Management Areas; a report to the Alaska Board of Fisheries, 2010. Alaska Department of Fish and Game, Fishery Manuscript Series No. 09-09, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/FMS09-09.pdf

Witteveen, M. J., H. Finkle, P. A. Nelson, J. J. Hasbrouck, and I. Vining. 2005. Review of salmon escapement goals in the Chignik Management Area. Alaska Department of Fish and Game, Fishery Manuscript Series No. 05-06, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms05-06.pdf

TABLES

Table 1.–Southeast Region Chinook, chum, coho, pink, and sockeye salmon escapement goals and escapements, 2009 to 2017.

	2017 Goal Range			Initial	Escapement								
System	Lower	Upper	Type	Year	2009	2010	2011	2012	2013	2014	2015	2016	2017
CHINOOK SALMON[a]													
Blossom River	150	300	BEG	2012	123	363	147	205	255	217	166	135	88[b]
Keta River	175	400	BEG	2012	219	475	223	241	493	439	304	446	300[b]
Unuk River	1,800	3,800	BEG	2009	3,157	3,835	3,195	956[b]	1,135[b,c]	1,691[b,c]	2,623[b]	1,463[b]	1,203[b]
Chickamin River	450	900	BEG	1997	611	1,156	853	444	468	652	581	203	152[b]
Andrew Creek	650	1,500	BEG	1998	628	1,205	936	587	920	1,261	796	402	349[b]
Stikine River	14,000	28,000	BEG	2000	12,803	15,116[b]	14,482[b]	22,327	16,783[b]	24,366[b]	21,597[b]	10,554[b]	7,206[b]
King Salmon River	120	240	BEG	1997	109	158	192	155	94	68	50	149	85[b]
Taku River	19,000	36,000	BEG	2009	22,761	28,769[b]	27,523[b]	19,538	18,002[b,c]	23,532[b]	28,827[b]	12,381[b]	8,754[b]
Chilkat River	1,850	3,600	inriver[d]	2003	4,429	1,815	2,688	1,744	1,730[b]	1,534[b]	2,453[b]	1,373[b]	1,173[b]
	1,750	3,500	BEG	2003	4,406	1,797	2,674	1,723	1719[b]	1,529[b]	2,456[b]	1,386[b]	1,173[b]
Klukshu (Alsek) River[e]	800	1,200	BEG	2013	1,518	2,259	1,610	693	1,227	832	1,388	646	443[b]
Alsek River[e]	3,500	5,300	BEG	2013	6,239	9,526	6,850	3,027	4,992	3,357	5,697[b]	2,504[b]	1,762[b]
Situk River	450	1,050	BEG	2003	902	166[f]	240	322	912	475	174	329	1,187[b]
CHUM SALMON													
Southern Southeast Summer	62,000		LB SEG	2015	46,000	51,000	179,000	155,000	86,000	47,000	115,000	90,000	84,000
Northern Southeast Inside Summer	119,000		LB SEG	2012	107,000	77,000	125,000	177,000	278,000	93,000	166,000	66,000	277,000
Northern Southeast Outside Summer	25,000		LB SEG	2015	17,000	28,000	25,000	38,000	23,000	28,000	26,000	26,000	25,000
Cholmondeley Sound Fall	30,000	48,000	SEG	2009	39,000	76,000	93,000	54,000	13,000	48,000	73,000	30,000	52,000
Port Camden Fall	2,000	7,000	SEG	2009	1,700	5,400	1,800	3,800	2,400	4,300	7,300	4,700	4,200
Security Bay Fall	5,000	15,000	SEG	2009	5,100	6,500	5,100	9,800	2,800	6,300	21,500	14,300	15,500
Excursion River Fall	4,000	18,000	SEG	2009	1,400	6,100	3,000	2,000	7,600	10,800	12,000	1,400	14,500
Chilkat River Fall	75,000	250,000	SEG	2015	329,000	89,000	360,000	287,000	166,000	142,000	207,000	218,000	130,000
COHO SALMON													
Hugh Smith Lake	500	1,600	BEG	2009	2,281	2,878	2,137	1,908	3,048	4,110	956	948	1,266
Klawock River	4,000	9,000	SEG	2013[g]	5,415	9,707	5,572	7,507	8,323	7,698	12,780	24,242	7,412
Taku River	50,000	90,000	BEG	2015	103,950[b]	126,830[b]	70,871[b]	70,775	68,117[b]	124,171[b]	60,178[b]	87,704[b]	57,868[b]
Auke Creek	200	500	BEG	1994	360	417	517	837	736	1,533	517	204	283
Montana Creek	400	1,200	SEG	2006	698	630	709	394	367	911	1,204	717	634
Peterson Creek	100	250	SEG	2006	123	467	138	190	126	284	202	52	20
Ketchikan Survey Index	4,250	8,500	BEG	2006	8,710	4,563	5,098	11,960	11,295	16,675	10,128	13,420	11,557
Sitka Survey Index	400	800	BEG	2006	1,156	1,273	2,222	1,157	1,414	2,161	2,244	2,943	1,280
Ford Arm Creek	1,300	2,900	BEG	1994	2,181	1,610	1,908	2,282	1,573	3,025	3,281	NA	NA
Berners River	4,000	9,200	BEG	1994	4,230	7,520	6,050	5,480	6,280	15,480	9,940	6,733	7,040

-continued-

Table 1.–Page 2 of 3.

System	2017 Goal Range Lower	Upper	Type	Initial Year	Escapement 2009	2010	2011	2012	2013	2014	2015	2016	2017
Chilkat River	30,000	70,000	BEG	2006	47,911	84,909	61,099	36,961	51,324	130,200	47,342	26,280	34,742
Lost River	eliminated			2015	3,581	2,393	1,221	2,200	2,593	3,555			
Tawah Creek (Lost River)	1,400	4,200	SEG	2015	3,581	2,393	1,221	NA	2,593	3,555	2,015	746	1,455
Situk River	3,300	9,800	BEG	1994	5,814	11,195	3,652	3,007	14,853	8,226	7,062	6,177	4,122
Tsiu/Tsivat Rivers	10,000	29,000	BEG	1994	28,000	11,000	21,000	10,500	47,000	27,000	19,500	31,000	38,000
PINK SALMON													
Southern Southeast	3,000,000	8,000,000	BEG	2009	7,200,000	5,940,000	5,500,000	6,470,000	14,450,000	9,650,000	4,300,000	6,600,000	6,390,000
Northern Southeast Inside	2,500,000	6,000,000	BEG	2009	3,650,000	3,210,000	6,030,000	2,110,000	5,400,000	1,380,000	5,250,000	1,780,000	4,650,000
Northern Southeast Outside	750,000	2,500,000	BEG	2009	1,820,000	2,010,000	2,730,000	2,470,000	5,340,000	2,750,000	2,840,000	1,700,000	2,840,000
Situk River (even-year)	eliminated			2012		89,301[h]							
Situk River (odd-year)	eliminated			2012	62,787		169,908						
Situk River	33,000		LB SEG	2012				30,577	150,500	28,238	69,635	24,949	263,830
SOCKEYE SALMON													
Hugh Smith Lake	8,000	18,000	OEG[i]	2003	9,483	15,646	22,029	13,353	5,946	10,397	21,296	12,865	14,748
	8,000	18,000	BEG	2003									
McDonald Lake	55,000	120,000	SEG	2009	51,000	72,500	113,000	57,000	15,400	43,400	70,200	15,600	24,000
Mainstem Stikine River	20,000	40,000	SEG	1987	17,148	24,831	29,393	33,812	27,091	21,179	26,432	28,646[b]	17,604[b]
Tahltan Lake[j]	18,000	30,000	BEG	1993	30,324	22,702	34,248	13,463	15,828	39,745	33,159	38,461[b]	19,241[b]
Speel Lake	4,000	9,000	SEG	2015	3,689	5,640	4,777	5,681	6,426	5,059	4,888	5,538	3,435
Taku River	71,000	80,000	SEG	1986	71,837	88,367	115,383	126,764	81,177	92,189	132,523	176,417[b]	108,416[b]
Redoubt Lake	7,000	25,000	OEG	2003	12,569	17,156	22,720	40,944	49,124	19,936	13,983	22,774	55,144
	10,000	25,000	BEG	2003									
Chilkat Lake	70,000	150,000	BEG	2009	150,033	61,906	63,628	121,810	116,300	70,470	175,874	88,513	89,514
Chilkoot Lake	38,000	86,000	SEG	2009	33,705	71,657	65,915	118,166	46,329	105,713	71,515	86,721	43,098
East Alsek-Doame River	13,000	26,000	BEG	2003	12,000	20,000	33,000	21,500	26,500	15,300	15,000	19,200	22,500
Klukshu River	7,500	11,000	BEG	2013	5,528	18,546	20,728	17,176	3,792	12,148	11,363	7,391[b]	3,711[b]
Alsek River[k]	24,000	33,500	BEG	2013	NA	NA	83,899	76,598	83,771	87,093	63,709	58,836	NA
Lost River	1,000		LB SEG	2009	NA	1,525	1,006	453	587	NA	373	449	NA
Situk River	30,000	70,000	BEG	2003	83,959	47,865[f]	89,943	62,500	118,635	102,318	95,093	57,693	92,168

Note: LB SEG = lower-bound SEG; NA = data not available.

[a] Goals are for large (≥660 mm MEF, or fish age 1.3 and older) Chinook salmon, except the goals for the Klukshu and Alsek rivers, which are germane to fish age 1.2 and older and can include fish <660 mm MEF.

[b] Preliminary data.

[c] Chinook salmon escapement estimate based on expanded foot/aerial survey index because mark–recapture studies failed.

[d] Chilkat River Chinook salmon inriver goal accounts for inriver subsistence harvest that average <100 fish.

-continued-

[e] Klukshu River Chinook salmon escapement is the metric used to manage Chinook salmon for the Alsek River system, which includes the Klukshu River. Alsek River Chinook salmon escapement is estimated using: [(Klukshu River weir count + sport harvest) × 4.0 – all Canadian inriver harvest].

[f] Incomplete weir count due to inseason problems with weir (e.g., breach of weir).

[g] Klawock coho salmon escapement goal was officially adopted in 2013, but escapement was managed for this goal beginning in 2007.

[h] Situk River weir was removed well before peak of pink salmon run so adequate assessment was not possible.

[i] Hugh Smith Lake sockeye salmon OEG includes wild and hatchery fish.

[j] Tahltan sockeye salmon escapement count includes fish collected for broodstock.

[k] Alsek River sockeye salmon run is not regularly assessed, so escapement numbers for every year are not available. Since 2013, Alsek River sockeye salmon have been managed to meet Klukshu River escapement goal as per the 2013 management plan (TTC 2014).

Table 2.–Central Region (Bristol Bay, Cook Inlet, and Prince William Sound/Copper River) Chinook, chum, coho, pink, and sockeye salmon escapement goals and escapements, 2009 to 2017.

System	2017 Goal Range Lower	Upper	Type	Initial Year	Escapement 2009	2010	2011	2012	2013	2014	2015	2016	2017
CHINOOK SALMON													
Bristol Bay													
Nushagak River	55,000	120,000	SEG	2013	74,781	56,088	102,258	167,618	107,602	70,482	98,019	125,368	56,961
Togiak River	eliminated			2013	NS	NS	NS	NS					
Naknek River	eliminated			2016	3,305[a]	NS	NS	NS	NS	NS	3,060		
Alagnak River	2,700		LB SEG	2007	1,957	NS	NS	NS	NS	NS	917	1,283	435
Egegik River	eliminated			2013	350[b]	NS	NS	NS					
Upper Cook Inlet													
Alexander Creek	2,100	6,000	SEG	2002	275	177	343	181	588	911	1,117	754	170
Campbell Creek	380		LB SEG	2011	554	290	260	NS	NS	274	654	544	475
Chuitna River	1,200	2,900	SEG	2002	1,040	735	719	502	1,690	1,398	1,965	1,372	235
Chulitna River	1,800	5,100	SEG	2002	2,093	1,052	1,875	667	1,262	1,011	3,137	1,151	NC
Clear (Chunilna) Creek	950	3,400	SEG	2002	1,205	903	512	1,177	1,471	1,390	1,205	NS	780
Crooked Creek	650	1,700	SEG	2002	617	1,088	654	631	1,103	1,411	1,459	1,747	911
Deshka River	13,000	28,000	SEG	2011	11,967	18,594	19,026	14,010	18,531	16,335	24,316	22,874	11,383
Goose Creek	250	650	SEG	2002	65	76	80	57	62	232	NC	NC	148
Kenai River - Early Run (all fish)	eliminated[c]			2017	6,163	6,393	8,448	5,044	2,148	5,311	6,190	9,177	
Kenai River - Early Run (large fish)	3,900	6,600	OEG	2017									6,553
	2,800	5,600	SEG	2017									
Kenai River - Late Run (all fish)	eliminated			2017	21,390	16,210	19,680	27,710	15,395	16,263	22,626	18,790	
Kenai River - Late Run (large fish)	13,500	27,000	SEG	2017									20,731
Lake Creek	2,500	7,100	SEG	2002	1,394	1,617	2,563	2,366	3,655	3,506	4,686	3,588	1,601
Lewis River	250	800	SEG	2002	111	56	92	107	61	61	5[d]	0	0[d]
Little Susitna River (Aerial)[e]	900	1,800	SEG	2002	1,028	589	887	1,154	1,651	1,759	1,507	1,622	1,192
Little Susitna River (Weir)	2,300	3,900	SEG	2017									2,531
Little Willow Creek	450	1,800	SEG	2002	776	468	713	494	858	684	788	675	840
Montana Creek	1,100	3,100	SEG	2002	1,460	755	494	416	1,304	953	1,416	692	603
Peters Creek	1,000	2,600	SEG	2002	1,283	NC	1,103	459	1,643	1,443	1,514	1,122	307
Prairie Creek	3,100	9,200	SEG	2002	3,500	3,022	2,038	1,185	3,304	2,812	3,290	1,853	1,930
Sheep Creek	600	1,200	SEG	2002	500	NC	350	363	NC	262	NC	NC	NC
Talachulitna River	2,200	5,000	SEG	2002	2,608	1,499	1,368	847	2,285	2,256	2,582	4,295	1,087
Theodore River	500	1,700	SEG	2002	352	202	327	179	476	312	426	68	21
Willow Creek	1,600	2,800	SEG	2002	1,133	1,173	1,061	756	1,752	1,335	2,046	1,814	1,329
Lower Cook Inlet													
Anchor River	3,800	7,600	SEG	2017	3,455	4,449	3,545	4,509	4,388	2,497	10,049	7,146	5,796
Deep Creek	350		LB SEG	2017	483	387	696	447	475	601	535	NS	753

-continued-

Table 2.–Page 2 of 6.

System	2017 Goal Range Lower	2017 Goal Range Upper	Type	Initial Year	Escapement 2009	2010	2011	2012	2013	2014	2015	2016	2017
Ninilchik River	750	1,300	SEG	2017	528	605	668	555	571	891	874	572	855
Prince William Sound													
Copper River	24,000		LB SEG	2003	27,781	16,771	27,993	27,911	28,727	20,840	26,607	12,534	NA[f]
CHUM SALMON													
Bristol Bay													
Nushagak River[g]	200,000		LB SEG	2013	438,481	273,914	248,278	360,768	602,300	493,821	288,929	419,810	415,488
Upper Cook Inlet													
Clearwater Creek	3,500	8,000	SEG	2017	8,300	13,700	11,630	5,300	9,010	3,110	10,790	5,056	7,040
Lower Cook Inlet													
Port Graham River	1,200	2,700	SEG	2017	1,029	1,395	1,764	699	1,944	3,735	4,030	2,391	5,765
Dogfish Lagoon	3,500	8,600	SEG	2017	4,380	12,703	12,936	8,842	9,300	11,205	13,312	11,260	13,191
Rocky River	1,500	4,400	SEG	2017	2,500	1,271	4,480	3,165	8,148	6,863	3,138	4,620	6,922
Port Dick Creek	1,900	4,300	SEG	2017	5,592	2,439	7,087	8,400	4,133	1,829	13,230	9,323	2,633
Island Creek	5,100	11,900	SEG	2017	9,295	3,408	11,755	14,863	8,772	2,699	18,479	8,210	5,522
Big Kamishak River	6,800	15,600	SEG	2017	15,026	NS	5,532	12,400	3,280	5,676	6,990	9,104	32,290
Little Kamishak River	8,000	16,800	SEG	2017	4,213	18,414	19,310	30,250	6,744	15,069	14,370	11,991	19,275
McNeil River	24,000	48,000	SEG	2008	18,766	10,520	30,977	10,388	9,498	17,475	20,494	26,262	38,679
Bruin River	5,200	10,000	SEG	2017	10,071	6,200	3,486	16,795	8,942	3,583	11,006	26,598	38,536
Ursus Cove	5,900	10,100	SEG	2017	12,946	11,765	10,636	2,840	10,339	5,308	14,783	7,032	22,025
Cottonwood Creek	5,200	12,200	SEG	2017	19,405	15,848	4,730	4,111	5,206	7,079	16,962	1,850	6,150
Iniskin Bay	5,900	13,600	SEG	2017	30,821	19,252	16,522	3,049	5,928	13,020	7,513	1,089	15,591
Prince William Sound[h]													
Eastern District	50,000		LB SEG	2006	150,051	146,613	240,321	97,362	150,044	93,491	112,142	131,168	85,618
Northern District	20,000		LB SEG	2006	30,296	59,530	64,743	23,818	41,058	27,680	43,179	10,746	34,516
Coghill District	8,000		LB SEG	2006	8,290	84,840	19,617	14,075	14,414	9,491	15,444	1,010	13,666
Northwestern District	5,000		LB SEG	2006	15,826	34,300	11,951	9,360	4,995	5,041	7,321	4,100	7,381
Southeastern District	8,000		LB SEG	2006	150,974	138,442	112,507	31,029	43,000	30,177	52,031	26,127	49,421
COHO SALMON													
Bristol Bay													
Nushagak River	60,000	120,000	SEG	2013				329,946	207,222	478,198	NS	NS	NS
Upper Cook Inlet													
Deshka River	10,200	24,100	SEG	2017									36,869
Fish Creek (Knik)	1,200	4,400	SEG	2011	8,214	6,977	1,428[i]	1,237	7,593[i]	10,283	7,912	2,484	8,966
Jim Creek	450	1,400	SEG	2014	1,331	242	229	213	663	122	571	106	5,646
Little Susitna River	10,100	17,700	SEG	2002	9,523	9,214	4,826[i]	6,779	13,583	24,211[j]	12,756	10,049	17,781

-continued-

Table 2.–Page 3 of 6.

System	2017 Goal Range Lower	Upper	Type	Initial Year	Escapement 2009	2010	2011	2012	2013	2014	2015	2016	2017
Lower Cook Inlet													
There are no coho salmon stocks with escapement goals in Lower Cook Inlet													
Prince William Sound													
Copper River Delta	32,000	67,000	SEG	2003	41,294	41,077	37,900	35,295	33,130	42,530	41,665	76,200	43,760
Bering River	13,000	33,000	SEG	2003	22,141	21,311	18,890	15,605	18,820	26,475	15,550	26,150	30,650
PINK SALMON													
Bristol Bay													
Nushagak River	165,000		LB SEG	2013				1,348,606	NA	2,281,831	NS	NS	NS
Upper Cook Inlet													
There are no pink salmon stocks with escapement goals in Upper Cook Inlet.													
Lower Cook Inlet													
Humpy Creek	17,500	51,400	SEG	2017	5,207	70,686	1,670	67,934	6,749	44,369	38,025	89,673	71,073
China Poot Creek	2,500	6,300	SEG	2017	1,120	2,220	3,462	8,392	7,119	1,409	7,366	698	2,379
Tutka Creek	6,500	17,000	SEG	2002	3,770	2,141	21,974	10,436	9,541	10,152	81,584	33,242	61,369
Barabara Creek	2,000	5,600	SEG	2017	2,583	13,935	8,186	1,412	17,377	3,558	25,203	2,813	25,002
Seldovia Creek	21,800	37,400	SEG	2017	14,619	25,886	46,231	44,722	36,824	35,895	108,793	15,694	27,025
Port Graham River	7,700	19,700	SEG	2017	13,996	16,586	20,883	34,486	11,893	32,295	82,356	14,629	20,642
Dogfish Lagoon Creeks	800	7,100	SEG	2017	9,200	6,300	3,900	11,400	26,448	8,848	50,058	2,307	13,331
Port Chatham	7,800	18,100	SEG	2017	25,291	2,992	15,830	5,430	57,447	10,290	42,613	1,140	44,291
Windy Creek Right	3,400	11,200	SEG	2017	15,012	6,408	1,722	5,823	11,704	5,710	17,009	1,400	5,053
Windy Creek Left	5,400	27,100	SEG	2017	57,263	24,241	12,210	11,691	47,849	10,147	33,640	500	17,381
Rocky River	11,700	54,800	SEG	2017	173,583	27,045	22,706	15,684	75,791	17,114	107,931	4,300	31,189
Port Dick Creek	17,900	49,800	SEG	2017	41,681	41,090	16,868	18,057	55,828	48,732	98,002	4,819	62,098
Island Creek	9,600	32,500	SEG	2017	44,527	69,525	10,181	20,079	26,004	50,402	50,387	1,735	22,579
S. Nuka Island Creek	2,800	11,200	SEG	2017	19,934	NS	NS	1,250	8,442	11,000	8,900	10	540
Desire Lake Creek	1,500	18,000	SEG	2017	73,926	2,978	600	2,260	56,921	443	46,290	169	4,364
Bear & Salmon Creeks	eliminated			2011	NS	NS							
Thumb Cove	eliminated			2011	NS	NS							
Humpy Cove	eliminated			2011	NS	NS							
Tonsina Creek	eliminated			2011	NS	NS							
Bruin River	17,800	103,000	SEG	2017	1,067,351	40,256	4,534	31,800	15,020	121,569	40,801	86,632	71,100
Sunday Creek	4,400	24,900	SEG	2017	106,296	6,607	844	1,348	6,132	7,665	60,385	2,130	22,211
Brown's Peak Creek	2,600	17,500	SEG	2017	63,605	3,092	2,035	2,800	4,061	4,048	29,141	1,378	39,197
Prince William Sound													
All Dist. Combined (even yr) [k]	eliminated			2012		1,910,357							
All Dist. Combined (odd yr)	eliminated			2012	2,338,923		3,826,378						

-continued-

Table 2.–Page 4 of 6.

System	2017 Goal Range Lower	Upper	Type	Initial Year	Escapement 2009	2010	2011	2012	2013	2014	2015	2016	2017
Eastern Dist. (even yr)	250,000	580,000	SEG	2012				301,709		270,244		663,113	
Eastern Dist. (odd yr)	310,000	640,000	SEG	2012					1,371,111		1,605,058		624,502
Northern Dist. (even yr)	140,000	210,000	SEG	2012				104,849		105,333		150,767	
Northern Dist. (odd yr)	90,000	180,000	SEG	2012					318,884		779,600		445,858
Coghill Dist. (even yr)	60,000	150,000	SEG	2012				172,611		63,290		171,362	
Coghill Dist. (odd yr)	60,000	250,000	SEG	2012					640,414		801,201		187,159
Northwestern Dist. (even yr)	70,000	140,000	SEG	2012				117,795		67,030		171,633	
Northwestern Dist. (odd yr)	50,000	110,000	SEG	2012					203,444		454,427		259,842
Eshamy Dist. (even yr)	3,000	11,000	SEG	2012				1,052		12,400		NA	
Eshamy Dist. (odd yr)	4,000	11,000	SEG	2012					12,145		70,068		2,880
Southwestern Dist. (even yr)	70,000	160,000	SEG	2012				90,156		84,607		NA	
Southwestern Dist. (odd yr)	70,000	190,000	SEG	2012					347,931		789,725		212,009
Montague Dist. (even yr)	50,000	140,000	SEG	2012				77,756		NA		NA	
Montague Dist. (odd yr)	140,000	280,000	SEG	2012					411,373		649,144		237,927
Southeastern Dist. (even yr)	150,000	310,000	SEG	2012				258,047		185,072		169,660	
Southeastern Dist. (odd yr)	270,000	620,000	SEG	2012					1,472,633		2,032,492		528,948
SOCKEYE SALMON													
Bristol Bay													
Kvichak River[l]	2,000,000	10,000,000	SEG	2010	2,266,140	4,207,410	2,264,352	4,164,444	2,088,576	4,458,540	7,341,612	4,462,728	3,163,404
Alagnak River (Tower)[m]	320,000		LB SEG	2007	970,818	1,187,730	883,794	861,747	1,095,950	200,524	5,770,650	NA	2,041,825
Alagnak River (Aerial)[n]	125,000		LB SEG	2016								696,400	629,200
Naknek River	800,000	2,000,000	SEG[o]	2015	1,169,466	1,463,928	1,177,074	900,312	938,160	1,474,428	1,920,954	1,691,910	1,899,972
Egegik River	800,000	2,000,000	SEG	2015	1,146,276	927,054	961,200	1,233,900	1,113,630	1,382,466	2,160,792	1,837,260	2,600,982
Ugashik River	500,000	1,400,000	SEG	2015	1,364,338	830,886	1,029,853	670,578	898,110	640,158	1,564,638	1,635,270	1,186,446
Wood River	700,000	1,800,000	SEG	2015	1,319,232	1,804,344	1,098,006	764,202	1,183,348	2,764,614	1,941,474	1,309,707	4,274,224
Igushik River	150,000	400,000	SEG	2015	514,188	518,040	421,380	193,770	387,036	340,590	651,172	469,230	578,700
Nushagak River	260,000	760,000	OEG	2012	484,149	468,696	428,191	432,438	894,172	618,477	796,684	680,513	3,324,756
	370,000	900,000	SEG	2015									
Kulukak Bay	eliminated			2013	NS	NS	NS	NS					
Togiak River	120,000	270,000	SEG	2007	313,946	188,298	190,970	203,148	128,058	151,934	218,700	200,046	195,330
Upper Cook Inlet													
Crescent River	eliminated			2014	NS	86,333	81,952	58,838	NS				
Fish Creek (Knik)	15,000	45,000	SEG	2017	83,480	126,836	66,678	18,813	18,912	43,915	102,309	46,202	61,469
Kasilof River	160,000	390,000	OEG	2011	324,783	293,765	243,767	372,523	487,700	438,238	470,677	239,981	358,724
	160,000	340,000	BEG	2011									

-continued-

Table 2.–Page 5 of 6.

System	2017 Goal Range Lower	2017 Goal Range Upper	Type	Initial Year	Escapement 2009	2010	2011	2012	2013	2014	2015	2016	2017
Kenai River[p]	OEG eliminated			2017	843,255	1,015,106	1,275,369	1,197,518	964,224	1,151,629	1,325,673	1,042,668	
	700,000	1,200,000	SEG	2011									NA
Packers Creek	15,000	30,000	SEG	2008	16,473	NS	NS	NS	NA	19,242	28,072	NA	17,164
Russian River - Early Run	22,000	42,000	BEG	2011	52,178	27,074	29,129	24,115	35,776	44,920	50,226	38,739	37,123
Russian River - Late Run	30,000	110,000	SEG	2005	80,088	38,848	41,529	54,911	31,364	52,277	46,223	37,837	45,012
Chelatna Lake	20,000	45,000	SEG	2017	17,721	37,784	70,353	36,577	70,555	26,212	69,750	60,792	26,986
Judd Lake	15,000	40,000	SEG	2017	44,616	18,361	39,997	18,303	14,088	22,416	47,684	NA	35,731
Larson Lake	15,000	35,000	SEG	2017	40,933	20,324	12,413	16,708	21,821	12,040	23,214	14,333	31,866
Lower Cook Inlet													
English Bay	6,000	13,500	SEG	2002	18,183	12,253	9,920	3,444	10,891	7,832	6,290	7,673	20,751
Delight Lake	5,100	10,600	SEG	2017	12,700	23,775	20,190	10,887	5,961	22,289	3,220	5,110	5,380
Desire Lake	4,800	11,900	SEG	2017	16,000	6,320	9,630	8,840	8,400	11,480	2,830	6,740	9,450
Bear Lake	700	8,300	SEG	2002	10,364	8,880	9,608	8,031	8,999	9,090	9,560	9,011	9,207
Aialik Lake	3,200	5,400	SEG	2017	3,100	5,315	3,480	2,140	3,530	450	3,182	400	4,900
Mikfik Lake	3,400	11,000	SEG	2017	20,965	5,221	395	3,131	4,042	18,062	3,502	10,180	7,495
Chenik Lake	2,900	13,700	SEG	2017	15,264	17,312	10,330	16,505	11,333	17,797	19,073	19,510	21,468
Amakdedori Creek	1,200	2,600	SEG	2017	2,160	1,210	3,412	770	1,540	4,280	2,910	2,240	1,680
Prince William Sound													
Upper Copper River	360,000	750,000	SEG	2012	468,725	502,995	607,657	953,745	860,829	864,988	930,095	503,033	461,129
Copper River Delta	55,000	130,000	SEG	2003	69,292	83,905	72,367	66,850	75,705	64,205	66,665	51,550	56,950
Bering River	15,000	33,000	SEG	2012	15,172	4,951	28,530	18,290	23,900	14,985	21,705	16,290	18,815
Coghill Lake	20,000	60,000	SEG	2012	23,186	24,312	102,359	74,978	17,231	21,836	13,684	8,708	50,312
Eshamy Lake[q]	13,000	28,000	BEG	2009	24,025	16,291	24,129	NA	4,500	7,453	4,381	5,817	NA

Note: NA = data not available; NC = no count; NS = no survey; LB SEG = lower-bound SEG.

[a] In 2009, aerial surveys were only flown on Big Creek (2,834 Chinook salmon) and King Salmon River (471 Chinook salmon). Mainstem Naknek River and Paul's Creek were not surveyed in 2009.

[b] Aerial surveys were conducted in the Egegik and King Salmon River systems on August 5, 2009, to provide escapement indices for Chinook and chum salmon. Resulting counts were 350 Chinook and 277 chum salmon. Water conditions were poor; high and turbid conditions prevented observation on most of the surveyed systems. Chinook salmon escapement indices were well below average in streams surveyed but should be considered minimum counts due to the poor water conditions. Based on carcass distribution and observed presence, the survey was probably conducted after peak spawning.

[c] Kenai River early-run Chinook salmon (all fish) SEG was eliminated and OEG was revised by BOF.

[d] Lewis River mouth naturally obstructed.

[e] Little Susitna River Chinook salmon aerial survey goal is only used to assess escapement if weir count is not available.

[f] The Copper River Chinook salmon spawning escapement estimate is not available. An inriver estimate is generated from a mark–recapture project run by the Native Village of Eyak and LGL Consulting. The spawning escapement estimate is generated by subtracting the upper Copper River state and federal subsistence, state personal use, and sport fishery harvest estimates from the mark–recapture estimate of the inriver abundance. Estimates for federal and state subsistence and the state personal use fishery harvests are generally not available for about 6 months after the fishery is closed. Additionally, the sport fishery harvest estimate is based on the mailout survey and is generally available about 12 months after the fishery ends.

-continued-

[g] Escapement goal for Nushagak River chum salmon is based on sonar count through July 20.
[h] No estimates for chum salmon escapements are included for the Unakwik, Eshamy, Southwestern, or Montague districts because there are no escapement goals for those districts.
[i] Incomplete counts for Fish Creek (Knik) coho salmon in 2011 and 2013 because weir was pulled before end of run.
[j] Incomplete counts for Little Susitna River coho salmon in 2011 due to breach of weir and in 2014 because weir was pulled before end of run.
[k] The estimates for pink salmon (odd year) do not include Unakwik District escapements, due to absence of an escapement goal and an average escapement estimate of a few thousand fish.
[l] Prior to 2010, Kvichak River had a prepeak/peak-cycle escapement goal of 6–10 million and an off-peak escapement goal of 2–10 million. Between 2001 and 2009, only one year (2004) was classified as either a prepeak or peak year.
[m] 2009–2015 Alagnak River sockeye salmon escapements for Alagnak River (Tower) escapement goal are expanded aerial surveys.
[n] Alagnek River sockeye salmon aerial survey-based escapement goal will be used in years that the Alagnak River tower is not operated.
[o] Naknek River has an OEG of 800,000–2,000,000 sockeye salmon when the Naknek River Special Harvest Area is open to fishing.
[p] Kenai River sockeye salmon uses the best estimate of sport harvest upstream of sonar.
[q] Eshamy River weir was not operated 2012–2016. A pilot project to assess the use of video for monitoring starting in 2013 has not provided a comparable total escapement estimate but did provide a minimum estimate of sockeye salmon.

Table 3.–Arctic-Yukon-Kuskokwim Region Chinook, chum, coho, pink, and sockeye salmon escapement goals and escapements, 2009 to 2017.

System	2017 Goal Range		Type	Initial	Escapement								
	Lower	Upper		Year	2009	2010	2011	2012	2013	2014	2015	2016	2017
CHINOOK SALMON													
Kuskokwim Area													
North (Main) Fork Goodnews River	640	3,300	SEG	2005	NS	NS	853	378	NS	630	991	1,120	NS
Middle Fork Goodnews River	1,500	2,900	BEG	2007	1,669	2,176	2,045	524	1,187	750	1,494	3,767	6,881
Kanektok River	3,900	12,000	SEG	2016	NS	1,208	NS	NS	2,277	1,840	4,919	5,631	NS
Kuskokwim River (entire area)	65,000	120,000	SEG	2013	118,478	49,073	72,097	76,074	47,315	123,987	155,464	145,718	150,193
Kogrukluk River	4,800	8,800	SEG	2013	9,528	5,812	6,731	NA	1,819	3,732	8,081	7,056	9,992
Kwethluk River	4,100	7,500	SEG	2013	5,744	1,669	4,079	NA	845	3,187	8,162	7,619	7,429
Tuluksak River	eliminated			2013	362	201	284	555					
George River	1,800	3,300	SEG	2013	3,663	1,498	1,547	2,201	1,292	2,993	2,282	1,663	3,685
Kisaralik River	400	1,200	SEG	2005	NS	235	NS	588	599	622	709	622	NS
Aniak River	1,200	2,300	SEG	2005	NS	NS	NS	NS	754	3,201	NS	718	1,781
Salmon River (Aniak R)	330	1,200	SEG	2005	NS	NS	79	49	154	497	810	NS	423
Holitna River	970	2,100	SEG	2005	NS	NS	NS	NS	532	NS	662	1,157	676
Cheeneetnuk River (Stony R)	340	1,300	SEG	2005	323	NS	249	229	138	340	NS	217	660
Gagaryah River (Stony R)	300	830	SEG	2005	303	62	96	178	74	359	19	135	453
Salmon River (Pitka Fork)	470	1,600	SEG	2005	632	135	767	670	469	1,865	2,016	1,578	687
Yukon River													
East Fork Andreafsky River	2,100	4,900	SEG	2010	3,004	2,413	5,213	2,517	1,998	5,949	5,474	2,676	2,970
West Fork Andreafsky River	640	1,600	SEG	2005	1,678	858	1,173	NS	1,094	1,695	NS	NS	942
Anvik River	1,100	1,700	SEG	2005	832	974	642	722	940	1,584	2,616	NS	1,101
Nulato River (forks combined)	940	1,900	SEG	2005	2,260	711	1,401	1,373	1,118	NS	1,564	NS	943
Gisasa River	eliminated			2010	515								
Chena River	2,800	5,700	BEG	2001	5,253	2,382	NS	2,200[a]	1,859	7,192[a]	6,291[a]	6,665[a]	4,201[b]
Salcha River	3,300	6,500	BEG	2001	12,774	6,135	7,200[c]	7,165	5,465	NS	6,287	2,675[d]	4,195[b]
Canada Mainstem	42,500	55,000	agreement[e]	annual	65,278	32,014	46,307	32,656	28,669	63,327	82,674	68,798	68,315
Norton Sound													
Fish River/Boston Creek	eliminated			2016	NS	NS	NS	NS	44	NS	669		
Kwiniuk River	250		LB SEG	2016	444	138	57	60	15	438	318	135	57
North River (Unalakleet R)	1,200	2,600	SEG	2005	2,357	1,256	841	972	580	3,454	1,950	513	1,044
Shaktoolik River	eliminated			2013	NS	NS	106	NS					
Unalakleet/Old Woman River	eliminated			2016	1,368	NS	105	NS	NS	NS	NS		
CHUM SALMON													
Kuskokwim Area													
Middle Fork Goodnews River	12,000		LB SEG	2005	19,236	24,789	19,974	9,065	27,682	11,518	11,517	41,815	54,799

-continued-

Table 3.–Page 2 of 4.

System	2017 Goal Range Lower	Upper	Type	Initial Year	Escapement 2009	2010	2011	2012	2013	2014	2015	2016	2017
Kanektok River	eliminated			2013	NS	NS	NS	NA					
Kogrukluk River	15,000	49,000	SEG	2005	82,483	69,258	76,823	NA	65,644	30,763	33,201	45,329	94,387
Aniak River	eliminated			2016	479,531	429,643	345,630	NA	NA	NA	NA		
Yukon River Summer Chum													
Yukon River Drainage	500,000	1,200,000	BEG	2016								1,914,526[b]	3,005,002[b]
East Fork Andreafsky River	40,000		LB SEG	2010	8,770	72,839	100,473	56,680	61,234	37,793	48,809	50,362	55,532
Anvik River	350,000	700,000	BEG	2005	193,099	396,173	642,528	483,972	571,690	399,796	374,968	337,821	415,139
Yukon River Fall Chum													
Yukon River Drainage[f]	300,000	600,000	SEG	2010	483,000	527,000	883,000	573,000	884,000	753,000	562,000	828,000	1,648,000
Tanana River[g]	61,000	136,000	BEG	2001	160,000	213,000	271,000	102,000	275,000	217,000	125,000	200,000	554,000
Delta River	6,000	13,000	BEG	2001	13,000	18,000	24,000	9,000	32,000	32,480	33,401	22,000	48,800
Toklat River	eliminated			2010	NA								
Upper Yukon River Tributaries	eliminated			2016	NA	196,000	409,000	333,000	392,000	297,000	172,000		
Chandalar River	74,000	152,000	BEG	2001	NA	168,000	298,000	206,000	253,000	226,000	164,000	295,000	509,000
Sheenjek River	eliminated			2016	54,000	22,000	98,000	105,000	113,000[h]	56,000[h]	34,000[h]		
Fishing Branch River (Canada)[i]	22,000	49,000	agreement	2008[j]	26,000	15,000	13,000	22,000	25,000	7,000	8,000	29,000	48,000
Yukon R. Mainstem (Canada)	70,000	104,000	agreement	2010[k]	94,000	118,000	206,000	138,000	200,000	156,000	109,000	145,000	401,000
Norton Sound													
Subdistrict 1 Aggregate	23,000	35,000	BEG	2001	21,368	97,798	66,122	51,459	108,120	97,234	92,030	60,749	123,722
Sinuk River	eliminated			2010	2,232								
Nome River	2,900	4,300	OEG	2001	1,565	5,877	3,578	2,028	4,811	5,589	6,111	7,093	8,324
	2,900	4,300	SEG	2005									
Bonanza River	eliminated			2010	6,744								
Snake River	1,600	2,500	OEG	2001	891	6,973	4,352	978	2,755	3,983	4,241	3,666	4,759
	1,600	2,500	SEG	2005									
Solomon River	eliminated			2010	918								
Flambeau River	eliminated			2010	4,075								
Eldorado River	6,000	9,200	OEG	2001	4,943	21,211	16,273	13,348	26,131	27,054	25,560	18,938	73,882
	6,000	9,200	SEG	2005									
Niukluk River	eliminated			2016	15,879	48,561	23,607	19,576	NS	NS	NS		
Kwiniuk River	11,500	23,000	OEG	2001	8,739	71,403	32,239	5,577	5,625	39,759	37,812	8,526	32,553
	10,000	20,000	BEG	2001									
Tubutulik River	9,200	18,400	OEG	2001	5,800	NS	18,800	NS	NS	NS	NS	NS	NS
	8,000	16,000	BEG	2001									
Unalakleet/Old Woman River	eliminated			2016	NS	NS	NS	NS	2,496	NS	NS		

-continued-

Table 3.–Page 3 of 4.

System	2017 Goal Range Lower	Upper	Type	Initial Year	Escapement 2009	2010	2011	2012	2013	2014	2015	2016	2017
Kotzebue Sound													
Kotzebue Sound Aggregate	196,000	421,000	BEG	2007									
Noatak and Eli Rivers	42,000	91,000	SEG	2007	69,872	NS	NS	NS	NS	453,284	NS	NS	NS
Upper Kobuk w/Selby River	9,700	21,000	SEG	2007	45,155	NS	NS	NS	NS	65,653	NS	NS	NS
Salmon River	3,300	7,200	SEG	2007	NS	NS	NS	NS	NS	NS	NS	NS	NS
Tutuksuk River	1,400	3,000	SEG	2007	NS	NS	NS	NS	NS	NS	NS	NS	NS
Squirrel River	4,900	10,500	SEG	2007	NS	NS	NS	NS	NS	NS	NS	NS	NS
COHO SALMON													
Kuskokwim Area													
Middle Fork Goodnews River	12,000		LB SEG	2005	19,123	26,287	24,668	NA	NA	NA	15,084[l]	NS	NS
Kogrukluk River	13,000	28,000	SEG	2005	22,289	14,689	21,800	13,421	21,207	52,975	32,493	NS	NS
Kwethluk River	19,000		LB SEG	2010	21,911	NA	NA	20,895	NA	43,945	24,367	28,852	46,594
Yukon River													
Delta Clearwater River	5,200	17,000	SEG	2005	16,850	5,867[m]	8,772	5,230	6,222	4,285	19,553	6,767	9,617
Norton Sound													
Kwiniuk River	650	1,300	SEG	2005	NS	2,925	1,331	NS	NS	NS	NS	1,987	NS
Niukluk River[n]	eliminated			2016	6,861	9,042	2,405	1,729	NS	NS	NS		
Niukluk River/Ophir Creek	750	1,600	SEG	2016								976	NS
North River (Unalakleet R.)	550	1,100	SEG	2005	2,830	NS	898	NS	867	NS	NS	NS	NS
PINK SALMON													
Kuskokwim Area													
There are no escapement goals for pink salmon in the Kuskokwim Management Area.													
Yukon River													
There are no escapement goals for pink salmon in the Yukon River drainage.													
Norton Sound													
Nome River (odd year)	3,200		LB SEG	2005	16,490		14,384		4,811		75,603		717,770
Nome River (even year)	13,000		LB SEG	2005		165,934		151,791		96,397		1,175,723	
Kwiniuk River	8,400		LB SEG	2005	42,963	634,169	30,913	393,030	13,212	322,830	67,295	1,909,949	506,445
Niukluk River	eliminated			2016	24,204	434,205	15,425	249,412	NS	NS	NS		
North River	25,000		LB SEG	2005	190,289	150,688	138,542	137,012	48,097	246,075	465,681	1,045,410	1,464,552
SOCKEYE SALMON													
Kuskokwim Area													
North (Main) Fork Goodnews River	9,600	18,000	SEG	2016	NS	NS	14,140	16,710	NS	NS	38,390	90,060	NS
Middle Fork Goodnews River	18,000	40,000	BEG	2007	27,494	36,574	19,643	29,531	23,545	41,473	57,809	170,574	179,897

-continued-

Table 3.–Page 4 of 4.

System	2017 Goal Range Lower	Upper	Type	Initial Year	Escapement 2009	2010	2011	2012	2013	2014	2015	2016	2017
Kanektok River	15,300	41,000	SEG	2016	NS	16,180	NS	NA	51,517	136,400	39,970	80,160	NS
Kogrukluk River	4,440	17,000	SEG	2010	22,826	17,139	7,974	NA	7,808	6,413	6,411	20,087	27,315
Yukon River													
There are no escapement goals for Sockeye in the Yukon River drainage.													
Norton Sound													
Salmon Lake/Grand Central River	4,000	8,000	SEG	2005	322	762	5,144	5,830	6,781	5,303	15,250	8,558	NS
Glacial Lake	800	1,600	SEG	2005	169	154	NS	NS	1,366	2,330	1,819	1,582	NS

Note: NA = data not available; NS = no survey; LB SEG = lower-bound SEG.

[a] 2012, 2014–2016 Chena River Chinook salmon escapement estimates include an expansion for missed counting days based on 2 DIDSON sonars used to assess Chinook salmon passage.

[b] Preliminary data.

[c] 2011 Salcha River Chinook salmon escapement is based on an aerial survey because high water prevented tower counting most of the season; therefore, aerial survey represents best estimate of escapement for the year.

[d] 2016 Salcha River sonar pulled early due to flooding. Bayesian hierarchical model was used to estimate fish passage for days when the sonar was not running.

[e] Canadian Yukon River Mainstem Chinook salmon Interim Management Escapement Goal of 42,500–55,000 was implemented for 2010–2017 seasons by the United States and Canada Yukon River Panel. Estimates represent escapement after subtraction of Canadian harvest.

[f] Bayesian estimate of drainagewide escapement for Yukon River fall chum salmon. 2014 was the first year of reporting the Bayesian estimate. Bayesian estimates are higher than estimates using the former method because the Kantishna River component is included in the Bayesian analysis.

[g] Tanana River fall chum salmon escapement estimated using mark–recapture 1995–2007, then based on relationship to either the Delta River or Mainstem Yukon River escapements from 2008 to present.

[h] Sheenjek River sonar project was discontinued in 2013; estimate is based on a linear regression between earlier Sheenjek 2 bank counts and Fishing Branch River weir counts.

[i] Fishing Branch River fall chum salmon weir assessment project was not operated after 2012. Estimates are based on border sonar estimate minus community harvest with additional information from mark–recapture studies assuming most fish migrate to Fishing Branch River.

[j] Fishing Branch River fall chum salmon Interim Management Escapement Goal of 22,000–49,000 was implemented for 2008–2013 by Yukon River Panel.

[k] Yukon River Mainstem fall chum salmon Interim Management Escapement Goal of 70,000–104,000 was implemented for 2010–2017 seasons by Yukon River Panel.

[l] Middle Fork Goodnews River coho salmon escapement for 2015 is minimum escapement because weir operations ended early.

[m] Delta Clearwater River coho salmon 2010 escapement index is not a peak count.

[n] Niukluk River coho salmon numbers (all years) are actual tower counts, and do not take into consideration upstream harvest.

Table 4.–Westward Region (Alaska Peninsula/Aleutian Islands, Kodiak, and Chignik areas) Chinook, chum, coho, pink, and sockeye salmon escapement goals and escapements, 2009 to 2017.

System	2017 Goal Range		Type	Initial	Escapement								
	Lower	Upper		Year	2009	2010	2011	2012	2013	2014	2015	2016	2017
CHINOOK SALMON													
AK Peninsula													
Nelson River	2,400	4,400	BEG	2004	2,048	2,769	1,704	1,092[a]	1,221[a]	3,801[a]	2,890[a]	4618[a]	1,852[a]
Chignik													
Chignik River	1,300	2,700	BEG	2002	1,590	3,845	2,490	1,404	1,185	2,765	1,958	1,743	1,137[b]
Kodiak													
Karluk River	3,000	6,000	BEG	2011	1,306	2,917	3,420	3,197[a]	1,824[a]	1,182[a]	2,777[a]	3,434[a]	2,600[a]
Ayakulik River	4,800	8,400	BEG	2017	2,615	5,197	4,251	4,744	2,354	917[a]	2,392[a]	4,594[a]	3,712[a]
CHUM SALMON													
AK Peninsula													
Northern District	119,600	239,200	SEG	2007	154,131	145,310	96,952	140,418	137,251	191,586	189,194	277,674	234,440
Northwestern District	100,000	215,000	SEG	2007	84,460	144,100	151,400	140,000	92,800	54,525	89,800	113,250	195,700
Southeastern District[c]	106,400	212,800	SEG	1992	106,500	62,612	145,300	31,072	184,350	82,300	250,370	150,456	592,460
South Central District	89,800	179,600	SEG	1992	18,600	85,600	169,000	86,190	155,050	95,000	298,800	248,360	810,053
Southwestern District	133,400	266,800	SEG	1992	385,730	142,650	176,425	87,230	163,200	130,745	351,150	220,060	363,000
Unimak District	eliminated			2013	1,400	1,050	7,000	750					
Chignik													
Entire Chignik Area	45,000	110,000	SEG	2016	108,300	102,625	119,000	93,800	109,900	46,720	123,400	69,900	96,900
Kodiak													
Mainland District	eliminated			2017	91,106	124,500	128,700	127,850	107,400	80,961	126,200	68,700	
Kodiak Archipelago Aggregate	101,000		LB SEG	2017	105,750	119,000	143,550	94,900	NA	84,700	171,800	133,785	184,500
COHO SALMON													
AK Peninsula													
Nelson River	18,000		LB SEG	2004	22,000	15,000	21,000	19,160	22,000	25,000	45,000	45,000	19,000
Thin Point Lake	eliminated			2013	900	NA	200	1,500					
Ilnik River	9,000		LB SEG	2010	24,000	19,600	18,000	11,800	17,000	33,000	14,000	28,000	6,000
Chignik													
There are no coho salmon stocks with escapement goals in Chignik Area													
Kodiak													
Pasagshak River	1,200		LB SEG	2011	2,385	1,971	1,083	3,132	1,648	4,934	1,790	737	701
Buskin River	4,700	9,600	BEG	2014	9,583	6,239	5,298	4,906	4,974	7,335	4,341	2,513	5,559
Olds River	1,000		LB SEG	2011	697	NA	1,003	624	2,145	1,320	1,357	1,634	1,054
American River	400		LB SEG	2011	639	NA	1,061	427	841	1,595	530	500	410

-continued-

Table 4.–Page 2 of 3.

System	2017 Goal Range Lower	2017 Goal Range Upper	Type	Initial Year	Escapement 2009	2010	2011	2012	2013	2014	2015	2016	2017
PINK SALMON													
AK Peninsula													
Bechevin Bay Section (odd yr)	eliminated			2013	72,000		2,400						
Bechevin Bay Section (even yr)	eliminated			2013		13,600		7,603					
South Peninsula Total (odd yr)	eliminated			2016	3,067,000		2,494,950		2,320,790		7,820,800		
South Peninsula Total (even yr)	eliminated			2016		742,912		478,910		1,340,380			
South Peninsula Total	1,750,000	4,000,000	SEG	2016								1,038,160	5,663,637
Chignik													
Entire Chignik Area (odd yr)	260,000	450,000	SEG	2016	344,050		272,000		231,800		404,000		586,000
Entire Chignik Area (even yr)	170,000	280,000	SEG	2016		98,400		111,000		87,240		68,100	
Kodiak													
Mainland District	250,000	1,000,000	SEG	2011	430,100	265,650	273,500	413,325	620,680	254,650	754,600	65,305	1,010,100
Kodiak Archipelago (odd yr)	2,000,000	5,000,000	SEG	2011	4,707,894		2,506,714		4,450,711		5,151,731		5,079,016
Kodiak Archipelago (even yr)	3,000,000	7,000,000	SEG	2011		3,378,483		5,111,049		2,733,282		1,699,281	
SOCKEYE SALMON													
AK Peninsula													
Cinder River[d]	36,000	94,000	SEG	2016	131,000	106,000	105,500	73,000	90,000	96,000	118,000	200,500	222,600
Ilnik River[e]	40,000	60,000	SEG	1991	66,000	59,000	43,000	61,000	51,000	59,000	26,000	124,000	238,000
Meshik River[f]	48,000	86,000	SEG	2016	125,000	110,700	101,900	50,900	123,600	114,700	171,700	131,800	191,525
Sandy River	34,000	74,000	SEG	2007	36,000	37,000	37,500	27,100	42,000	59,000	116,000	170,000	145,000
Bear River Early Run	176,000	293,000	SEG	2004	216,237	226,534	207,451	173,158	219,074	259,046	304,356	293,280	570,840
Bear River Late Run	117,000	195,000	SEG	2004	133,263	142,966	132,549	116,442	196,926	206,954	210,644	139,720	229,160
Nelson River	97,000	219,000	BEG	2004	157,000	108,000	89,000	103,300	248,000	250,000	257,000	300,000	381,000
Christianson Lagoon	25,000	50,000	SEG	1980s	48,100	27,900	35,200	40,000	16,500	32,600	6,700	111,700	290,600
Swanson Lagoon	6,000	16,000	SEG	2007	1,000	1,700	1,000	3,500	3,000	1,500	3,500	3,000	860
North Creek	4,400	8,800	SEG	late 1980s	8,000	18,500	10,200	18,000	8,500	7,500	18,000	21,000	5,800
Orzinski Lake	15,000	20,000	SEG	1992	21,457	18,039	16,764	17,243	17,386	13,600	26,534	21,019	20,989
Mortensen Lagoon	3,200	6,400	SEG	late 1980s	25,000	6,600	500	5,000	4,000	500	NA	13,000	15,500
Thin Point Lake	14,000	28,000	SEG	late 1980s	33,500	12,400	14,500	19,000	5,700	8,600	19,900	36,400	44,300
McLees Lake[g]	10,000	60,000	SEG	2010	10,120	32,842	36,602	15,111	15,687	12,424	20,284	39,892	13,195
Chignik													
Chignik River Early Run	350,000	450,000	BEG	2014	391,476	432,535	488,930	353,441	386,782	360,381	534,088	418,290	453,257
Chignik River Late Run[h]	200,000	400,000	SEG	2008	328,586	311,291	264,887	358,948	369,319	291,228	589,809	348,023	339,303
Kodiak													
Malina Creek	1,000	10,000	SEG	2005	1,400	4,000	3,800	4,100	3,800	4,900	1,000	2,000	1,000

-continued-

Table 4.–Page 3 of 3.

System	2017 Goal Range Lower	Upper	Type	Initial Year	Escapement 2009	2010	2011	2012	2013	2014	2015	2016	2017
Afognak (Litnik) River[i]	20,000	50,000	BEG	2005	31,358	52,255	49,193	41,553	42,153	36,345	38,151	33,167	22,151
Little River	eliminated			2014	1,500	3,200	3,900	6,300	17,600				
Uganik Lake	eliminated			2017	53,700	30,700	37,900	22,200	26,000	14,000	9,000	34,100	
Karluk River Early Run	150,000	250,000	BEG	2017	52,798	71,453	87,049	188,085	234,880	252,097	260,758	164,760	242,599
Karluk River Late Run	200,000	450,000	BEG	2017	277,280	276,649	230,273	314,605	336,479	543,469	396,618	324,049	385,896
Ayakulik River	eliminated			2011	315,184	262,327							
Ayakulik River Early Run	140,000	280,000	SEG	2011	200,648	201,933	177,480	213,501	214,969	210,040	218,178	182,589	204,497
Ayakulik River Late Run	60,000	120,000	SEG	2011	114,536	60,394	83,661	114,753	67,195	87,671	108,257	71,978	120,361
Upper Station River Early Run	OEG eliminated[j]			2017	34,585	42,060	28,759	25,487	27,712	36,823	54,473	48,047	
	43,000	93,000	BEG	2011									83,614
Upper Station River Late Run	120,000	265,000	BEG	2005	161,736	141,139	101,893	149,325	125,573	181,411	132,864	145,013	209,298
Frazer Lake	75,000	170,000	BEG	2008	101,845	94,680	134,642	148,884	136,059	200,296	219,093	122,585	129,227
Saltery Lake[k]	15,000	35,000	BEG	2011	43,468	24,102	27,803	25,155	35,939	29,047	44,796	57,867	35,218
Pasagshak River	3,000		LB SEG	2011	1,400	4,800	8,100	2,600	9,750	350	600	3,200	4,800
Buskin Lake	5,000	8,000	BEG	2011	7,757	9,800	11,982	8,565	16,189	13,976	8,719	11,584	7,222

Note: NA = data not available; LB SEG = lower-bound SEG.

[a] Chinook salmon sport harvest is assumed to be zero as the fishery was closed to retention.

[b] 2017 Chinook salmon escapement estimated for Chignik are preliminary and have not been adjusted for sport harvest because data from surveys and logbooks have not been compiled.

[c] Southeastern District chum salmon escapement goal includes Shumagin Islands Section and Southeastern District Mainland.

[d] Cinder River sockeye salmon escapement includes Mud Creek.

[e] Ilnik River sockeye salmon counts in 2009, 2010, 2012, 2013, and 2016 include Ocean River aerial surveys added as a separate component. In all other years Ocean River flows into Ilnik Lagoon and is counted at the Ilnik River weir.

[f] Meshik River escapement includes Meshik River, Red Bluff Creek, and Yellow Bluff Creek. It does not include Highland or Charles creeks.

[g] McLees Lake sockeye salmon SEG will be in effect if a weir is in place; there will be no goal if a weir is not operated.

[h] The Chignik River late-run sockeye escapement objective includes the late-run sockeye salmon SEG (200,000–400,000) plus an additional 25,000 fish in August and 25,000 fish from September 1–15 to ensure inriver harvest opportunities above the weir.

[i] Afognak (Litnik) River sockeye salmon escapement does not incorporate egg-take removals.

[j] OEG for Upper Station River early run sockeye salmon was 25,000 from 1999–2013, the OEG was increased to 30,000 from 2014–2016 and managed for only if the department determined that the upper end of the Frazer escapement goal would be exceeded, and the OEG was eliminated in 2017.

[k] Saltery Lake sockeye salmon escapements are weir counts minus fish removed for egg takes.

Table 5.–Summary of salmon escapement goal changes in Upper Cook Inlet, Lower Cook Inlet, and Kodiak management areas, 2017.

Management Area	Species	System	Previous Esc. Goal Lower	Previous Esc. Goal Upper	Previous Esc. Goal Type	Initial Year	New Esc. Goal Lower	New Esc. Goal Upper	New Esc. Goal Type	Enum. Method	Goal Development Method	Action
CENTRAL REGION												
Upper Cook Inlet	Chinook	Kenai R. - Early Run (all fish)	3,800	8,500	SEG	2013	–	–	–	–	–	eliminated
		Kenai R. - Early Run (large fish)	–	–	–	–	2,800	5,600	SEG	Sonar	SRA	new goal
		Kenai R. - Early Run	5,300	9,000	OEG	2005	3,900	6,600	OEG	–	–	revised to large fish only
		Kenai R. - Late Run (all fish)	15,000	30,000	SEG	2013	–	–	–	–	–	eliminated
		Kenai R. - Late Run (large fish)	–	–	–	–	13,500	27,000	SEG	Sonar	SRA	new goal
		Little Susitna R. (Weir)	–	–	–	–	2,300	3,900	SEG	Weir	Percentile	new goal
	Chum	Clearwater Creek	3,800	8,400	SEG	2002	3,500	8,000	SEG	PAS	Percentile	revised goal range
	Coho	Deshka R.	–	–	–	–	10,200	24,100	SEG	Weir	Percentile	new goal
	Sockeye	Fish Creek (Knik)	20,000	70,000	SEG	2002	15,000	45,000	SEG	Weir	Percentile	revised goal range
		Kenai R.	700,000	1,400,000	OEG	2011	–	–	–	–	–	removed from management plan
		Chelatna Lake	20,000	65,000	SEG	2009	20,000	45,000	SEG	Weir	Percentile	revised goal range
		Judd Lake	25,000	55,000	SEG	2009	15,000	40,000	SEG	Weir	Percentile	revised goal range
		Larson Lake	15,000	50,000	SEG	2009	15,000	35,000	SEG	Weir	Percentile	revised goal range
Lower Cook Inlet	Chinook	Anchor River	3,800	10,000	SEG	2011	3,800	7,600	SEG	Sonar, Weir	SRA	revised goal range
		Deep Creek	350	800	SEG	2002	350		LB SEG	SAS	Percentile	changed to LB SEG
		Ninilchik River	550	1,300	SEG	2008	750	1,300	SEG	Weir	Percentile	revised goal range
	Chum	Port Graham River	1,450	4,800	SEG	2002	1,200	2,700	SEG	MFS	Percentile	revised goal range
		Dogfish Lagoon	3,350	9,150	SEG	2002	3,500	8,600	SEG	MFS	Percentile	revised goal range
		Rocky River	1,200	5,400	SEG	2002	1,500	4,400	SEG	MAS or MFS	Percentile	revised goal range
		Port Dick Creek	1,900	4,450	SEG	2002	1,900	4,300	SEG	MAS or MFS	Percentile	revised goal range
		Island Creek	6,400	15,600	SEG	2002	5,100	11,900	SEG	MAS or MFS	Percentile	revised goal range

-continued-

Table 5.–Page 2 of 3.

Management Area	Species	System	Previous Esc. Goal Lower	Previous Esc. Goal Upper	Previous Esc. Goal Type	Initial Year	New Esc. Goal Lower	New Esc. Goal Upper	New Esc. Goal Type	Enum. Method	Goal Development Method	Action
		Big Kamishak River	9,350	24,000	SEG	2002	6,800	15,600	SEG	MAS	Percentile	revised goal range
		Little Kamishak River	6,550	23,800	SEG	2002	8,000	16,800	SEG	MAS	Percentile	revised goal range
		Bruin River	6,000	10,250	SEG	2002	5,200	10,000	SEG	MAS	Percentile	revised goal range
		Ursus Cove	6,050	9,850	SEG	2002	5,900	10,100	SEG	MAS	Percentile	revised goal range
		Cottonwood Creek	5,750	12,000	SEG	2002	5,200	12,200	SEG	MAS	Percentile	revised goal range
		Iniskin Bay	7,850	13,700	SEG	2002	5,900	13,600	SEG	MAS	Percentile	revised goal range
	Pink	Humpy Creek	21,650	85,550	SEG	2002	17,500	51,400	SEG	MFS	Percentile	revised goal range
		China Poot Creek	2,900	8,200	SEG	2002	2,500	6,300	SEG	MFS	Percentile	revised goal range
		Barabara Creek	1,900	8,950	SEG	2002	2,000	5,600	SEG	MFS	Percentile	revised goal range
		Seldovia Creek	19,050	38,950	SEG	2002	21,800	37,400	SEG	MFS	Percentile	revised goal range
		Port Graham River	7,700	19,850	SEG	2002	7,700	19,700	SEG	MFS	Percentile	revised goal range
		Dogfish Lagoon Creeks	1,200	8,400	SEG	2014	800	7,100	SEG	MAS or MFS	Percentile	revised goal range
		Port Chatham	7,800	21,000	SEG	2002	7,800	18,100	SEG	MFS	Percentile	revised goal range
		Windy Creek Right	3,350	10,950	SEG	2002	3,400	11,200	SEG	MFS	Percentile	revised goal range
		Windy Creek Left	3,650	29,950	SEG	2002	5,400	27,100	SEG	MFS	Percentile	revised goal range
		Rocky River	9,350	54,250	SEG	2002	11,700	54,800	SEG	MAS or MFS	Percentile	revised goal range
		Port Dick Creek	18,550	58,300	SEG	2002	17,900	49,800	SEG	MAS or MFS	Percentile	revised goal range
		Island Creek	7,200	28,300	SEG	2002	9,600	32,500	SEG	MAS or MFS	Percentile	revised goal range
		S. Nuka Island Creek	2,700	14,250	SEG	2002	2,800	11,200	SEG	MAS or MFS	Percentile	revised goal range
		Desire Lake Creek	1,900	20,200	SEG	2002	1,500	18,000	SEG	MAS	Percentile	revised goal range
		Bruin River	18,650	155,750	SEG	2002	17,800	103,000	SEG	MAS	Percentile	revised goal range
		Sunday Creek	4,850	28,850	SEG	2002	4,400	24,900	SEG	MAS	Percentile	revised goal range
		Brown's Peak Creek	2,450	18,800	SEG	2002	2,600	17,500	SEG	MAS	Percentile	revised goal range

-continued-

Table 5.–Page 3 of 3.

Management Area	Species	System	Previous Esc. Goal Lower	Previous Esc. Goal Upper	Previous Esc. Goal Type	Initial Year	New Esc. Goal Lower	New Esc. Goal Upper	New Esc. Goal Type	Enum. Method	Goal Development Method	Action
	Sockeye	Delight Lake	7,550	17,650	SEG	2011	5,100	10,600	SEG	PAS	Percentile	revised goal range
		Desire Lake	8,800	15,200	SEG	2002	4,800	11,900	SEG	PAS	Percentile	revised goal range
		Aialik Lake	3,700	8,000	SEG	2002	3,200	5,400	SEG	PAS	Percentile	revised goal range
		Mikfik Lake	3,400	13,000	SEG	2014	3,400	11,000	SEG	Video	Percentile	revised goal range
		Chenik Lake	3,500	14,000	SEG	2011	2,900	13,700	SEG	Video, Weir Count	Percentile	revised goal range
		Amakdedori Creek	1,250	2,600	SEG	2002	1,200	2,600	SEG	PAS	Percentile	revised goal range
WESTWARD REGION												
Kodiak	Chinook	Ayakulik River	4,000	7,000	BEG	2011	4,800	8,400	BEG	Weir Count	SRA	revised goal range
	Chum	Mainland District	104,000		LB SEG	2008	–	–	–	–	–	eliminated
		Kodiak Archipelago Aggregate	151,000		LB SEG	2008	101,000		LB SEG	PAS	Percentile	revised goal based on reduced number of index streams
	Sockeye	Uganik Lake	24,000		LB SEG	2008	–	–	–	–	–	eliminated
		Karluk River Early Run	110,000	250,000	BEG	2008	150,000	250,000	BEG	Weir Count	SRA	revised goal range
		Karluk River Late Run	170,000	380,000	BEG	2005	200,000	450,000	BEG	Weir Count	SRA	revised goal range
		Upper Station River Early Run	25,000		OEG	1999	–	–	–	–	–	removed from management plan

Note: LB SEG = lower-bound SEG; SAS = single aerial survey; SRA = spawner–recruit analysis; PAS = peak aerial survey; MFS = multiple foot surveys; MAS = multiple aerial surveys.

Table 6.–Assessment of whether escapements met (Met), exceeded (Over), or did not meet (Under) the escapement goal in place at the time of enumeration for salmon stocks in Southeast Region.

Species	System	2009	2010	2011	2012	2013	2014	2015	2016	2017
Chinook Salmon	Blossom River	Under	Met	Under	Met[a]	Met	Met	Met	Under	Under
	Keta River	Under	Met	Under	Met[a]	Over	Over	Met	Over	Met
	Unuk River	Met[b]	Over	Met	Under	Under	Under	Met	Under	Under
	Chickamin River	Met	Over	Met	Under	Met	Met	Met	Under	Under
	Andrew Creek	Under	Met	Met	Under	Met	Met	Met	Under	Under
	Stikine River	Under	Met	Met	Met	Met	Met	Met	Under	Under
	King Salmon River	Under	Met	Met	Met	Under	Under	Under	Met	Under
	Taku River	Met[a]	Met	Met	Met	Under	Met	Met	Under	Under
	Chilkat River	Over	Met	Met	Under	Under	Under	Met	Under	Under
	Klukshu (Alsek) River	Met	Met	Met	Under	Over[a]	Met	Over	Under	Under
	Alsek River					Met	Under	Over	Under	Under
	Situk River	Met	NA	Under	Under	Met	Met	Under	Under	Over
Chum Salmon	Southern Southeast Summer	Under	Under	Met	Met[c]	Met	Under	Met[c]	Met	Met
	Northern Southeast Inside Summer	Under	Under	Under	Met[c]	Met	Under	Met	Under	Met
	Northern Southeast Outside Summer	Under	Met	Met	Met	Under	Met	Met[c]	Met	Met
	Cholmondeley Sound Fall	Met	Over	Over	Over	Under	Met	Over	Met	Over
	Port Camden Fall	Under	Met	Under	Met	Met	Met	Over	Met	Met
	Security Bay Fall	Met	Met	Met	Met	Under	Met	Over	Met	Over
	Excursion River Fall	Under	Met	Under	Under	Met	Met	Met	Under	Met
	Chilkat River Fall	Over	Met	Over	Over	Met	Met	Met[d]	Met	Met
Coho Salmon	Hugh Smith Lake	Over[a]	Over	Over	Over	Over	Over	Met	Met	Met
	Klawock					Met	Met	Over	Over	Met
	Taku River	Met	Met	Met	Met	Under[e]	Met	Met[f]	Met	Met
	Auke Creek	Met	Met	Over	Over	Over	Over	Over	Met	Met
	Montana Creek	Met	Met	Met	Under	Under	Met	Over	Met	Met
	Peterson Creek	Met	Over	Met	Met	Met	Over	Met	Under	Under
	Ketchikan Survey Index	Over	Met	Met	Over	Over	Over	Over	Over	Over
	Sitka Survey Index	Over	Over	Over	Over	Over	Over	Over	Over	Over
	Ford Arm Creek	Met	Met	Met	Met	Met	Over	Over	NA	NA
	Berners River	Met	Met	Met	Met	Met	Over	Over	Met	Met
	Chilkat River	Met	Over	Met	Met	Met	Over	Met	Under	Met
	Lost River	Met[g]	Met	Under	Met	Met	Met	eliminated		
	Tawah Creek (Lost River)							Met	Under	Met
	Situk River	Met	Over	Met	Under	Over	Met	Met	Met	Met
	Tsiu/Tsivat Rivers	Met	Met	Met	Met	Over	Met	Met	Over	Over

-continued-

Table 6.–Page 2 of 2.

Species	System	2009	2010	2011	2012	2013	2014	2015	2016	2017
Pink Salmon	Southern Southeast	Met[h]	Met	Met	Met	Over	Over	Met	Met	Met
	Northern Southeast Inside	Met[h]	Met	Over	Under	Met	Under	Met	Under	Met
	Northern Southeast Outside	Met[h]	Met	Over	Met	Over	Over	Over	Met	Over
	Situk River (even year)		NA[i]							
	Situk River (odd year)	Met		Met						
	Situk River				Under[j]	Met	Under	Met	Under	Met
Sockeye Salmon	Hugh Smith Lake	Met	Met	Over	Met	Under	Met	Over	Met	Met
	McDonald Lake	Under[a]	Met	Met	Met	Under	Under	Met	Under	Under
	Mainstem Stikine River	Under	Met	Met	Met	Met	Met	Met	Met	Under
	Tahltan Lake	Over	Met	Over	Under	Under	Over	Over	Over	Met
	Speel Lake	Under	Met	Met	Met	Met	Met	Met[k]	Met	Under
	Taku River	Met	Over	Over	Over	Met	Over	Over	Over	Over
	Redoubt Lake	Met	Met	Met	Over	Over	Met	Met	Met	Over
	Chilkat Lake	Over[a]	Under	Under	Met	Met	Met	Met	Met	Met
	Chilkoot Lake	Under[a]	Met	Met	Over	Met	Over	Met	Over	Met
	East Alsek-Doame River	Under	Met	Over	Met	Over	Met	Met	Met	Met
	Klukshu River	Under	Over	Over	Over	Under[d]	Over	Over	Under	Under
	Lost River	NA[g]	Met	Met	Under	Under	NA	Under	Under	NA
	Situk River	Over	Met	Over	Met	Over	Over	Over	Met	Over

Note: NA = data not available. Blank cells indicate that there was no official escapement goal for the stock in that particular year.

[a] Escapement goal reevaluated, goal range changed.

[b] Prior to 2009, goal was based on index count of escapements.

[c] Escapement goal reevaluated, lower-bound goal changed.

[d] Escapement goal reevaluated, upper-bound goal changed.

[e] Management target revised.

[f] Management target changed to a goal range.

[g] Escapement goal reevaluated, upper-bound goal eliminated, lower-bound goal remained the same.

[h] Expansion factor was removed from escapement estimates and escapement goal was reevaluated.

[i] Situk River weir was pulled well before peak of pink salmon run; therefore, a valid assessment of whether the goal was met is not possible.

[j] Escapement goal reevaluated, odd and even-year goals replaced by single goal, goal range changed to lower-bound goal.

[k] Escapement goal reevaluated, goal type and goal range changed.

Table 7.–Assessment of whether escapements met (Met), exceeded (Over), or did not meet (Under) the escapement goal in place at the time of enumeration for salmon stocks in Central Region (Bristol Bay, Cook Inlet, and Prince William Sound/Copper River).

Species	System	2009	2010	2011	2012	2013	2014	2015	2016	2017
Chinook salmon	*Bristol Bay*									
	Nushagak River	Met	Met	Met	Over	Met[a]	Met	Met	Over	Met
	Togiak River	NS	NS	NS	NS	eliminated				
	Naknek River	Under	NS	NS	NS	NS	NS	Under	eliminated	
	Alagnak River	Under	NS	NS	NS	NS	NS	Under	Under	Under
	Egegik River	Under	NS	NS	NS	eliminated				
	Upper Cook Inlet									
	Alexander Creek	Under	Under	Under	Under	Under	Under	Under	Under	Under
	Campbell Creek	Met	Met	Under	NS	NS	Under	Met	Met	Met
	Chuitna River	Under	Under	Under	Under	Met	Met	Met	Met	Under
	Chulitna River	Met	Under	Met	Under	Under	Under	Met	Under	NC
	Clear (Chunilna) Creek	Met	Under	Under	Met	Met	Met	Met	NS	Under
	Crooked Creek	Under	Met	Met	Under	Met	Met	Met	Over	Met
	Deshka River	Under	Met	Met	Met	Met	Met	Met	Met	Under
	Goose Creek	Under	Under	Under	Under	Under	Under	NC	NC	Under
	Kenai River - Early Run (all fish)	Over	NA[b]	NA[b]	NA[b]	Under[c]	Met	Met	NA	eliminated
	Kenai River - Early Run (large fish)									Met
	Kenai River - Late Run (all fish)	Under	NA[b]	NA[b]	NA[b]	Met[c]	Met	Met	NA	eliminated
	Kenai River - Late Run (large fish)									Met
	Lake Creek	Under	Under	Met	Under	Met	Met	Met	Met	Under
	Lewis River	Under	Under	Under	Under	Under	Under	NA	Under	NA
	Little Susitna River	Met	Under	Under	Met	Met	Met	Met	Met	Met
	Little Willow Creek	Met	Met	Met	Met	Met	Met	Met	Met	Met
	Montana Creek	Met	Under	Under	Under	Met	Under	Met	Under	Under
	Peters Creek	Met	NC	Met	Under	Met	Met	Met	Met	Under
	Prairie Creek	Met	Under	Under	Under	Met	Under	Met	Under	Under
	Sheep Creek	Under	NC	Under	Under	NC	Under	NC	NC	NC
	Talachulitna River	Met	Under	Under	Under	Met	Met	Met	Met	Under
	Theodore River	Under	Under	Under	Under	Under	Under	Under	Under	Under
	Willow Creek	Under	Under	Under	Under	Met	Under	Met	Met	Under
	Lower Cook Inlet									
	Anchor River	Under	Under	Under[d]	Met	Met	Under	Over	Met	Met[e]
	Deep Creek	Met	Met	Met	Met	Met	Met	Met	NS	Met[f]
	Ninilchik River	Under	Met	Met	Met	Met	Met	Met	Met	Met[g]
	Prince William Sound									
	Copper River	Met	Under	Met	Met	Met	Under	Met	Under	NA

-continued-

Table 7.–Page 2 of 5.

Species	System	2009	2010	2011	2012	2013	2014	2015	2016	2017
Chum salmon	*Bristol Bay*									
	Nushagak River	Met	Met	Met	Met	Met[a]	Met	NS	Met	Met
	Upper Cook Inlet									
	Clearwater Creek	Met	Over	Over	Met	Over	Under	Over	Met	Met[h]
	Lower Cook Inlet									
	Port Graham River	Under	Under	Met	Under	Met	Met	Met	Met	Over[h]
	Dogfish Lagoon	Met	Over	Over	Met	Over	Over	Over	Over	Over[h]
	Rocky River	Met	Met	Met	Met	Over	Over	Met	Met	Over[h]
	Port Dick Creek	Over	Met	Over	Over	Met	Under	Over	Over	Met[e]
	Island Creek	Met	Under	Met	Met	Met	Under	Over	Met	Met[h]
	Big Kamishak River	Met	NS	Under	Met	Under	Under	Under	Under	Over[h]
	Little Kamishak River	Under	Met	Met	Over	Met	Met	Met	Met	Over[h]
	McNeil River	Under	Under	Met	Under	Under	Under	Under	Met	Met
	Bruin River	Met	Met	Under	Over	Met	Under	Over	Over	Over[h]
	Ursus Cove	Over	Over	Over	Under	Over	Under	Over	Met	Over[h]
	Cottonwood Creek	Over	Over	Under	Under	Under	Met	Over	Under	Met[h]
	Iniskin Bay	Over	Over	Under	Under	Under	Met	Under	Under	Over[h]
	Prince William Sound									
	Eastern District	Met	Met	Met	Met	Met	Met	Met	Met	Met
	Northern District	Met	Met	Met	Met	Met	Met	Met	Met	Met
	Coghill District	Met	Met	Met	Met	Met	Met	Met	Met	Met
	Northwestern District	Met	Met	Met	Met	Under	Met	Met	Met	Met
	Southeastern District	Met	Met	Met	Met	Met	Met	Met	Met	Met
Coho salmon	*Bristol Bay*									
	Nushagak River					Over	Over	NS	NS	NS
	Upper Cook Inlet									
	Deshka River									Over
	Fish Creek (Knik)			Met[i]	Met	Over	Over	Over	Met	Over
	Jim Creek	Over	Under	Under	Under	Over	Under[e]	Met	Under	Over
	Little Susitna River	Under	Under	Under	Under	Met	Over	Met	Under	Over
	Prince William Sound									
	Copper River Delta	Met	Met	Met	Met	Met	Met	Met	Over	Met
	Bering River	Met	Met	Met	Met	Met	Met	Met	Met	Met
Pink salmon	*Bristol Bay*									
	Nushagak River					NA	Met	NS	NS	NS

-continued-

Table 7.–Page 3 of 5.

Species	System	2009	2010	2011	2012	2013	2014	2015	2016	2017
	Lower Cook Inlet									
	Humpy Creek	Under	Met	Under	Met	Under	Met	Met	Over	Over[h]
	China Poot Creek	Under	Under	Met	Over	Met	Under	Met	Under	Under[h]
	Tutka Creek	Under	Under	Over	Met	Met	Met	Over	Over	Over
	Barabara Creek	Met	Over	Over	Under	Over	Met	Over	Met	Over[h]
	Seldovia Creek	Under	Met	Over	Over	Met	Met	Over	Under	Met[h]
	Port Graham River	Met	Met	Over	Over	Met	Over	Over	Met	Over[e]
	Dogfish Lagoon Creeks						Over	Over	Met	Over[h]
	Port Chatham	Over	Under	Met	Under	Over	Met	Over	Under	Over[e]
	Windy Creek Right	Over	Met	Under	Met	Over	Met	Over	Under	Met[h]
	Windy Creek Left	Over	Met	Met	Met	Over	Met	Over	Under	Met[h]
	Rocky River	Over	Met	Met	Met	Over	Met	Over	Under	Met[h]
	Port Dick Creek	Met	Met	Under	Under	Met	Met	Over	Under	Over[h]
	Island Creek	Over	Over	Met	Met	Met	Over	Over	Under	Met[h]
	S. Nuka Island Creek	Over	NS	NS	Under	Met	Met	Met	Under	Under[h]
	Desire Lake Creek	Over	Met	Under	Met	Over	Under	Over	Under	Met[h]
	Bear & Salmon Creeks	NS	NS	eliminated						
	Thumb Cove	NS	NS	eliminated						
	Humpy Cove	NS	NS	eliminated						
	Tonsina Creek	NS	NS	eliminated						
	Bruin River	Over	Met	Under	Met	Under	Met	Met	Met	Met[h]
	Sunday Creek	Over	Met	Under	Under	Met	Met	Over	Under	Met[h]
	Brown's Peak Creek	Over	Met	Under	Met	Met	Met	Over	Under	Over[h]
	Prince William Sound									
	All Districts Combined (even year)		Met		eliminated					
	All Districts Combined (odd year)	Met		Over	eliminated					
	Eastern District (even year)				Met		Met		Over	
	Eastern District (odd year)					Over		Over		Met
	Northern District (even year)				Under		Under		Met	
	Northern District (odd year)					Over		Over		Over
	Coghill District (even year)				Over		Met		Met	
	Coghill District (odd year)					Over		Over		Met
	Northwestern District (even year)				Met		Under		Over	
	Northwestern District (odd year)					Over		Over		Over
	Eshamy District (even year)				Under		Over		NA	
	Eshamy District (odd year)					Over		Over		Under
	Southwestern District (even year)				Met		Met		NA	
	Southwestern District (odd year)					Over		Over		Over

-continued-

Table 7.–Page 4 of 5.

Species	System	2009	2010	2011	2012	2013	2014	2015	2016	2017
	Montague District (even year)				Met		Under		NA	
	Montague District (odd year)					Over		Over		Met
	Southeastern District (even year)				Met		Met		Met	
	Southeastern District (odd year)					Over		Over		Met
Sockeye salmon	*Bristol Bay*									
	Kvichak River	Met	Met	Met	Met	Met	Met	Met	Met	Met
	Alagnak River	Met	Met	Met	Met	Met	Under	Met	Met	Met
	Naknek River	Met	Over	Met	Met	Met	Over	Met[e]	Met	Met
	Egegik River	Met	Met	Met	Met	Met	Met	Over[e]	Met	Over
	Ugashik River	Over	Met	Met	Met	Met	Met	Over[e]	Over	Met
	Wood River	Met	Over	Met	Met	Met	Over	Over[e]	Met	Over
	Igushik River	Over	Over	Over	Met	Over	Over	Over[e]	Over	Over
	Nushagak River	Met	Met	Met	Met	Over[a]	Met	Over	Met	Over
	Kulukak Bay	NS	NS	NS	NS	eliminated				
	Togiak River	Over	Met[j]	Met	Met	Met	Met	Met	Met	Met
	Upper Cook Inlet									
	Crescent River	NS	Over	Over	Met	NS	eliminated			
	Fish Creek (Knik)	Over	Over	Met	Under	Under	Met	Over	Met	Over[h]
	Kasilof River	Over	Met	Met	Met	Over	Over	Over	Met	Met
	Kenai River	Under	Met	Met	Met	Met	Met	Met	Met	NA[k]
	Packers Creek	Met	NS	NS	NS	NA	Met	Met	NA	Met
	Russian River - Early Run	Over	Met	Met	Met	Met	Over	Over	Met	Met
	Russian River - Late Run	Met	Met	Met	Met	Met	Met	Met	Met	Met
	Chelatna Lake	Under	Met	Over	Met	Over	Met	Over	Met	Met[e]
	Judd Lake	Met	Under	Met	Under	Under	Under	Met	NA	Met[h]
	Larson Lake	Met	Met	Under	Met	Met	Under	Met	Under	Met[e]
	Lower Cook Inlet									
	English Bay	Over	Met	Met	Under	Met	Met	Met	Met	Over
	Delight Lake	Over	Over	Over	Met	Under	Over	Under	Under	Met[h]
	Desire Lake	Over	Under	Met	Met	Under	Met	Under	Under	Met[h]
	Bear Lake	Over	Over	Over	Met	Over	Over	Over	Over	Over
	Aialik Lake	Under	Met	Under	Under	Under	Under	Under	Under	Met[h]
	Mikfik Lake	Over	Met	Under	Under	Under	Over[c]	Met	Met	Met[e]
	Chenik Lake	Over	Over	Met	Over	Met	Over	Over	Over	Over[h]
	Amakdedori Creek	Met	Under	Over	Under	Met	Over	Over	Met	Met[g]
	Prince William Sound									
	Upper Copper River	Met	Over	Over	Over[h]	Over	Over	NA	NA	Met

-continued-

Table 7.–Page 5 of 5.

Species	System	2009	2010	2011	2012	2013	2014	2015	2016	2017
	Copper River Delta	Met	Met	Met	Met	Met	Met	Met	Under	Met
	Bering River	Under	Under	Met	Met[h]	Met	Under	Met	Met	Met
	Coghill Lake	Under	Met	Over	Over[h]	Under	Met	Under	Under	Met
	Eshamy Lake	Met[h]	Met	Met	NA	NA	NA	NA	NA	NA

Note: NA = data not available; NC = no count; NS = no survey. There are no escapement goals for coho salmon in Lower Cook Inlet and there are no pink salmon escapement goals in Upper Cook Inlet.

[a] Escapement goal reevaluated, historic escapements converted from Bendix counts to DIDSON equivalents. Escapements in Table 2 are based on DIDSON counts.

[b] Target strength based escapement estimate deemed unreliable or not available.

[c] Escapements and escapement goal reevaluated, goal range changed. Escapement estimates in Table 2 are based on new methodology.

[d] Escapement goal reevaluated, lower-bound goal changed to a range.

[e] Escapement goal reevaluated, upper bound changed, lower bound remained the same.

[f] Escapement goal reevaluated, goal range changed to a lower-bound goal.

[g] Escapement goal reevaluated, lower bound changed, upper bound remained the same.

[h] Escapement goal reevaluated, goal range changed.

[i] Previous escapement goal reinstated.

[j] Escapement goal reevaluated, goal type changed but goal range remained the same.

[k] BOF removed OEG from management plan. Stock managed to meet BEG.

Table 8.–Assessment of whether escapements met (Met), exceeded (Over), or did not meet (Under) the escapement goal in place at the time of enumeration for salmon stocks in Arctic-Yukon-Kuskokwim Region.

Species	System	2009	2010	2011	2012	2013	2014	2015	2016	2017
Chinook salmon	*Kuskokwim Area*									
	North (Main) Fork Goodnews R	NS	NS	Met	Under	NS	Under	Met	Met	NS
	Middle Fork Goodnews River	Met	Met	Met	Under	Under	Under	Under	Over	Over
	Kanektok River	NS	Under	NS	NS	Under	Under	Met	Met[a]	NS
	Kuskokwim Area (entire area)					Under	Over	Met	Over	Over
	Kogrukluk River	Met	Met	Met	NA	Under[a]	Under	Met	Met	Over
	Kwethluk River	Under	Under	Under	NA	Under[a]	Under	Over	Over	Met
	Tuluksak River	Under	Under	Under	Under	eliminated				
	George River	Met	Under	Under	Under	Under[a]	Met	Met	Under	Over
	Kisaralik River	NS	Under	NS	Met	Met	Met	Met	Met	NS
	Aniak River	NS	NS	NS	NS	Under	Over	NS	Under	Met
	Salmon River (Aniak R)	NS	NS	Under	Under	Under	Met	Met	NS	Met
	Holitna River	NS	NS	NS	NS	Under	NS	Under	Met	Under
	Cheeneetnuk River (Stony R)	Under	NS	Under	Under	Under	Met	NS	Under	Met
	Gagaryah River (Stony R)	Met	Under	Under	Under	Under	Met	Under	Under	Met
	Salmon River (Pitka Fork)	Met	Under	Met	Met	Under	Over	Over	Met	Met
	Yukon River									
	East Fork Andreafsky River	Under	Met[b]	Over	Met	Under	Over	Over	Met	Met
	West Fork Andreafsky River	Over	Met	Met	NS	Met	Over	NS	NS	Met
	Anvik River	Under	Under	Under	Under	Under	Met	Over	NS	Met
	Nulato River (forks combined)	Over	Under	Met	Met	Met	NS	Met	NS	Met
	Gisasa River	Met	eliminated							
	Chena River	Met	Under	NS	Under	Under	Over	Over	Over	Met
	Salcha River	Over	Met	Over	Over	Met	NS	Met	Under	Met
	Canada Mainstem	Met	Under[c]	Met	Under	Under	Over	Over	Over	Over
	Norton Sound									
	Fish River/Boston Creek	NS	NS	NS	NS	Under	NS	Met	eliminated	
	Kwiniuk River	Met	Under	Under	Under	Under	Met	Met	Under[d]	Under
	North River (Unalakleet R)	Met	Met	Under	Under	Under	Over	Met	Under	Under
	Shaktoolik River	NS	NS	Under	NS	eliminated				
	Unalakleet/Old Woman River	Over	NS	Under	NS	NS	NS	NS	eliminated	
Chum salmon	*Kuskokwim Area*									
	Middle Fork Goodnews River	Met	Met	Met	Under	Met	Under	Under	Met	Met
	Kanektok River	NS	NS	NS	NA	eliminated				
	Kogrukluk River	Over	Over	Over	NA	Over	Met	Met	Met	Over

-continued-

Table 8.–Page 2 of 3.

Species	System	2009	2010	2011	2012	2013	2014	2015	2016	2017
	Aniak River	Met	Met	Met	NS	NA	NA	NA	eliminated	
	Yukon River Summer Chum									
	Yukon River Drainage								Over	Over
	East Fork Andreafsky River	Under	Met[d]	Met	Met	Met	Under	Met	Met	Met
	Anvik River	Under	Met	Met	Met	Met	Met	Met	Under	Met
	Yukon River Fall Chum									
	Yukon River Drainage	Met	Met[e]	Over	Met	Over	Over	Met	Over	Over
	Tanana River	Over	Over	Over	Met	Over	Over	Met	Over	Over
	Delta River	Met	Over	Over	Met	Over	Over	Over	Over	Over
	Toklat River	NA	eliminated							
	Upper Yukon River Tributaries	NA	Met	Over	Over	Over	Met	Met	eliminated	
	Chandalar River	NA	Over	Over	Over	Over	Over	Over	Over	Over
	Sheenjek River	Met	Under	Met	Over	Over	Met	Under	eliminated	
	Fishing Branch River (Canada)	Met	Under	Under	Met	Met	Under	Under	Met	Met
	Yukon R. Mainstem (Canada)	Met	Over[c]	Over	Over	Over	Over	Over	Over	Over
	Norton Sound									
	Subdistrict 1 Aggregate	Under	Over	Over	Over	Over	Over	Over	Over	Over
	Sinuk River	Under	eliminated							
	Nome River	Under	Over	Met	Under	Over	Over	Over	Over	Over
	Bonanza River	Over	eliminated							
	Snake River	Under	Over	Over	Under	Over	Over	Over	Over	Over
	Solomon River	Under	eliminated							
	Flambeau River	Under	eliminated							
	Eldorado River	Under	Over	Over	Over	Over	Over	Over	Over	Over
	Niukluk River	Under	Met[a]	Met	Under	NS	NA	NS	eliminated	
	Kwiniuk River	Under	Over	Over	Under	Under	Over	Over	Under	Over
	Tubutulik River	Under	NS	Over	NS	NS	NS	NS	NS	NS
	Unalakleet/Old Woman River	NS	NS	NS	NS	Met	NS	NS	eliminated	
	Kotzebue Sound									
	Kotzebue Sound Aggregate									
	Noatak and Eli Rivers	Met	NS	NS	NS	NS	Over	NS	NS	NS
	Upper Kobuk w/Selby River	Over	NS	NS	NS	NS	Over	NS	NS	NS
	Salmon River	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Tutuksuk River	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Squirrel River	NS	NS	NS	NS	NS	NS	NS	NS	NS
Coho salmon	*Kuskokwim Area*									
	Middle Fork Goodnews River	Met	Met	Met	NA	NA	NA	Met	NS	NS

-continued-

Table 8.–Page 3 of 3.

Species	System	2009	2010	2011	2012	2013	2014	2015	2016	2017
	Kogrukluk River	Met	Met	Met	Met	Met	Over	Over	NS	NS
	Kwethluk River		NA	NA	Met	NA	Met	Met	Met	Met
	Yukon River									
	Delta Clearwater River	Met	Met	Met	Met	Met	Under	Over	Met	Met
	Norton Sound									
	Kwiniuk River	NS	Over	Over	NS	NS	NS	NS	Over	NS
	Niukluk River	Over	Over[a]	Met	Under	NS	NS	NS	eliminated	
	Niukluk River/Ophir Creek								Met	NS
	North River (Unalakleet R.)	Over	NS	Met	NS	Met	NS	NS	NS	NS
Pink salmon	*Norton Sound*									
	Nome River (odd year)	Met		Met		Met		Met		Met
	Nome River (even year)		Met		Met		Met		Met	
	Kwiniuk River	Met	Met	Met	Met	Met	Met	Met	Met	Met
	Niukluk River	Met	Met	Met	Met	NS	NS	NS	eliminated	
	North River	Met	Met	Met	Met	Met	Met	Met	Met	Met
Sockeye salmon	*Kuskokwim Area*									
	North (Main) Fork Goodnews River	NS	NS	Met	Met	NS	NS	Over	Over[a]	NS
	Middle Fork Goodnews River	Met	Met	Under	Met	Met	Over	Over	Over	Over
	Kanektok River	NS	Met	NS	NA	Over	Over	Over	Over[a]	NS
	Kogrukluk River		Met	Met	NA	Met	Met	Met	Met	Over
	Norton Sound									
	Salmon Lake/Grand Central River	Under	Under	Met	Met	Met	Met	Over	Over	NS
	Glacial Lake	Under	Under	NS	NS	Met	Over	Over	Met	NS

Note: NA = data not available; NS = no survey. There are no escapement goals for pink salmon in Kuskokwim Area and Yukon River and there are no escapement goals for sockeye salmon in Yukon River.

[a] Escapement goal reevaluated, goal value changed.

[b] Previous escapement goal was based on aerial surveys, replaced with escapement goal based on weir counts. Escapements in Table 3 are weir counts.

[c] Escapement goal revised by The United States and Canada Yukon River Panel.

[d] Escapement goal reevaluated, goal range changed to a lower-bound goal.

[e] Escapement goal reevaluated, goal type changed but goal value remained the same.

Table 9.–Assessment of whether escapements met (Met), exceeded (Over), or did not meet (Under) the escapement goal in place at the time of enumeration for salmon stocks in Westward Region (Alaska Peninsula/Aleutian Islands, Kodiak, and Chignik areas).

Species	System	2009	2010	2011	2012	2013	2014	2015	2016	2017
Chinook salmon	*AK Peninsula*									
	Nelson River	Under	Met	Under	Under	Under	Met	Met	Over	Under
	Chignik									
	Chignik River	Met	Over	Met	Met	Under	Over	Met	Met	Under
	Kodiak									
	Karluk River	Under	Under	Met[a]	Met	Under	Under	Under	Met	Under
	Ayakulik River	Under	Met	Met[a]	Met	Under	Under	Under	Met	Under[a]
Chum salmon	*AK Peninsula*									
	Northern District	Met	Met	Under	Met	Met	Met	Met	Over	Met
	Northwestern District	Under	Met	Met	Met	Under	Under	Under	Met	Met
	Southeastern District	Met	Under	Met	Under	Met	Under	Over	Met	Over
	South Central District	Under	Under	Met	Under	Met	Met	Over	Over	Over
	Southwestern District	Over	Met	Met	Under	Met	Under	Over	Met	Over
	Unimak District	Met	Met	Met	Under	eliminated				
	Chignik									
	Entire Chignik Area	Met	Met	Met	Met	Met	Met	Met	Met[b]	Met
	Kodiak									
	Mainland District	Under	Met	Met	Met	Met	Under	Met	Under	eliminated
	Kodiak Archipelago Aggregate	Met	Met	Met	Met	Met	Under	Met	Under	Met[b]
Coho salmon	*AK Peninsula*									
	Nelson River	Met	Under	Met	Met	Met	Met	Met	Met	Met
	Thin Point Lake	Under	NA	Under	Under	eliminated				
	Ilnik River		Met[c]	Met	Met	Met	Met	Met	Met	Under
	Kodiak									
	Pasagshak River	Met	Met	Under[d]	Met	Met	Met	Met	Under	Under
	Buskin River	Over	Met	Met	Met	Met	Met[a]	Under	Under	Met
	Olds River	Under	NA	Met[d]	Under	Met	Met	Met	Met	Met
	American River	Met	NA	Met[d]	Met	Met	Met	Met	Met	Met
Pink salmon	*AK Peninsula*									
	Bechevin Bay Section (odd year)	Met		Met		eliminated				
	Bechevin Bay Section (even year)		Under		Under	eliminated				
	South Peninsula Total (odd year)	Met		Met		Met		Over	eliminated	
	South Peninsula Total (even year)		Under		Under		Under		eliminated	
	South Peninsula Total								Under	Over

-continued-

Table 9.–Page 2 of 3.

Species	System	2009	2010	2011	2012	2013	2014	2015	2016	2017
	Chignik									
	Entire Chignik Area (odd year)	Over		Over		Over		Over	[b]	Over
	Entire Chignik Area (even year)		Met		Met		Met		Under[b]	
	Kodiak									
	Mainland District	Met	Met	Met[e]	Met	Met	Met	Met	Under	Over
	Kodiak Archipelago (odd year)	Met		Met[f]		Met		Over		Over
	Kodiak Archipelago (even year)		Met	[f]	Met		Under		Under	
		Over		Over		Over		Over	[b]	Over
Sockeye salmon	*AK Peninsula*		Met		Met		Met		Under[b]	
	Cinder River	Over	Over	Over	Over	Over	Over	Over	Over[b]	Over
	Ilnik River	Over	Met	Met	Over	Met	Met	Under	Over	Over
	Meshik River	Over	Met[a]	Met	Met	Met	Over	Over	Over[b]	Over
	Sandy River	Met	Met	Met	Under	Met	Met	Over	Over	Over
	Bear River Early Run	Met	Met	Met	Under	Met	Met	Over	Over	Over
	Bear River Late Run	Met	Met	Met	Under	Over	Over	Over	Met	Over
	Nelson River	Met	Met	Under	Met	Over	Over	Over	Over	Over
	Christianson Lagoon	Met	Met	Met	Met	Under	Met	Under	Over	Over
	Swanson Lagoon	Under	Under	Under	Met	Under	Under	Under	Under	Under
	North Creek	Met	Over	Over	Over	Met	Met	Over	Over	Met
	Orzinski Lake	Over	Met	Met	Met	Met	Under	Over	Over	Over
	Mortensen Lagoon	Over	Over	Under	Met	Met	Under	NA	Over	Over
	Thin Point Lake	Over	Under	Met	Met	Under	Under	Met	Over	Over
	McLees Lake		Met[c]	Met	Met	Met	Met	Met	Met	Met
	Chignik									
	Chignik River Early Run	Met	Over	Over	Met	Met	Met[e]	Over	Met	Over
	Chignik River Late Run	Met	Met	Met	Met	Met	Met	Over	Met	Met
	Kodiak									
	Malina Creek	Met	Met	Met	Met	Met	Met	Met	Met	Met
	Afognak (Litnik) River	Met	Over	Met	Met	Met	Met	Met	Met	Met
	Little River	Under	Met	Met	Met	Met	eliminated			
	Uganik Lake	Met	Met	Met	Under	Met	Under	Under	Met	eliminated
	Karluk River Early Run	Under	Under	Under	Met	Met	Over	Over	Met	Met[a]
	Karluk River Late Run	Met	Met	Met	Met	Met	Over	Over	Met	Met[a]
	Ayakulik River	Met	Met	eliminated						
	Ayakulik River Early Run			Met[g]	Met	Met	Met	Met	Met	Met
	Ayakulik River Late Run			Met[g]	Met	Met	Met	Met	Met	Over
	Upper Station River Early Run	Met	Met	Met	Met	Met	Met[h]	Met	Met	Met[h]
	Upper Station River Late Run	Met	Met	Under	Met	Met	Met	Met	Met	Met

-continued-

Table 9.–Page 3 of 3.

Species	System	2009	2010	2011	2012	2013	2014	2015	2016	2017
	Frazer Lake	Met	Met	Met	Met	Met	Over	Over	Met	Met
	Saltery Lake	Over	Met	Met[e]	Met	Over	Met	Over	Over	Over
	Pasagshak River	Under	Met	Met[d]	Met	Met	Under	Under	Met	Met
	Buskin Lake	Under	Met	Over[i]	Over	Over	Over	Over	Over	Met

Note: There are no coho salmon escapement goals in Chignik Area.

[a] Escapement goal reevaluated, goal range changed.

[b] Escapement goal reevaluated, number of index streams used to develop escapement goal changed, and escapement goal changed. Escapements in Table 4 are adjusted for new set of index streams for all years.

[c] Goal reestablished. New analysis.

[d] Escapement goal reevaluated, upper bound eliminated, lower goal bound remained the same.

[e] Escapement goal reevaluated, upper bound of goal changed.

[f] Single escapement goal was separated into odd- and even-year escapement goals.

[g] Single escapement goal was changed to separate early- and late-run escapement goals.

[h] OEG changed from 25,000 fish to 30,000 fish in 2014, then eliminated in 2017.

[i] Escapement goal reevaluated, goal type and range changed.

Table 10.–Southeast Region Chinook, chum, coho, pink, and sockeye salmon escapements compared to escapement goals for the years 2009 to 2017.

	2009	2010	2011	2012	2013	2014	2015	2016	2017
CHINOOK SALMON									
Number Below	5	0	3	6	4	4	2	10	10
Number Met	5	8	8	5	6	7	8	1	1
Number Above	1	2	0	0	2	1	2	1	1
% Below	45%	0%	27%	55%	33%	33%	17%	83%	83%
% Met	45%	80%	73%	45%	50%	58%	67%	8%	8%
% Above	9%	20%	0%	0%	17%	8%	17%	8%	8%
CHUM SALMON									
Number Below	5	2	3	1	3	2	0	2	0
Number Met	2	5	3	5	5	6	5	6	6
Number Above	1	1	2	2	0	0	3	0	2
% Below	63%	25%	38%	13%	38%	25%	0%	25%	0%
% Met	25%	63%	38%	63%	63%	75%	63%	75%	75%
% Above	13%	13%	25%	25%	0%	0%	38%	0%	25%
COHO SALMON									
Number Below	0	0	1	2	2	0	0	3	1
Number Met	10	8	9	7	6	6	7	6	9
Number Above	3	5	3	4	6	8	7	4	3
% Below	0%	0%	8%	15%	14%	0%	0%	23%	8%
% Met	77%	62%	69%	54%	43%	43%	50%	46%	69%
% Above	23%	38%	23%	31%	43%	57%	50%	31%	23%
PINK SALMON									
Number Below	0	0	0	2	0	2	0	2	0
Number Met	4	3	2	2	2	0	3	2	3
Number Above	0	0	2	0	2	2	1	0	1
% Below	0%	0%	0%	50%	0%	50%	0%	50%	0%
% Met	100%	100%	50%	50%	50%	0%	75%	50%	75%
% Above	0%	0%	50%	0%	50%	50%	25%	0%	25%
SOCKEYE SALMON									
Number Below	6	1	1	2	5	1	1	3	4
Number Met	3	10	6	7	5	6	7	7	5
Number Above	3	2	6	4	3	5	5	3	3
% Below	50%	8%	8%	15%	38%	8%	8%	23%	33%
% Met	25%	77%	46%	54%	38%	50%	54%	54%	42%
% Above	25%	15%	46%	31%	23%	42%	38%	23%	25%

Table 11.–Central Region (Bristol Bay, Cook Inlet, Prince William Sound/Copper River) Chinook, chum, coho, pink, and sockeye salmon escapements compared to escapement goals for the years 2009 to 2017.

	2009	2010	2011	2012	2013	2014	2015	2016	2017
CHINOOK SALMON									
Number Below	16	15	14	14	6	12	4	8	13
Number Met	12	7	10	8	18	14	20	11	10
Number Above	1	0	0	1	0	0	1	2	0
% Below	55%	68%	58%	61%	25%	46%	16%	38%	57%
% Met	41%	32%	42%	35%	75%	54%	80%	52%	43%
% Above	3%	0%	0%	4%	0%	0%	4%	10%	0%
CHUM SALMON									
Number Below	3	3	4	5	5	7	3	3	0
Number Met	12	10	11	11	10	10	8	13	11
Number Above	4	5	4	3	4	2	7	3	8
% Below	16%	17%	21%	26%	26%	37%	17%	16%	0%
% Met	63%	56%	58%	58%	53%	53%	44%	68%	58%
% Above	21%	28%	21%	16%	21%	11%	39%	16%	42%
COHO SALMON									
Number Below	1	2	2	2	0	1	0	2	0
Number Met	2	2	3	3	3	2	4	2	2
Number Above	1	0	0	0	3	3	1	1	4
% Below	25%	50%	40%	40%	0%	17%	0%	40%	0%
% Met	50%	50%	60%	60%	50%	33%	80%	40%	33%
% Above	25%	0%	0%	0%	50%	50%	20%	20%	67%
PINK SALMON									
Number Below	4	3	7	7	2	5	0	12	3
Number Met	4	12	5	14	9	18	4	7	12
Number Above	10	2	5	4	14	4	22	4	11
% Below	22%	18%	41%	28%	8%	19%	0%	52%	12%
% Met	22%	71%	29%	56%	36%	67%	15%	30%	46%
% Above	56%	12%	29%	16%	56%	15%	85%	17%	42%
SOCKEYE SALMON									
Number Below	5	4	3	6	7	5	4	6	0
Number Met	14	18	20	21	16	14	13	17	21
Number Above	12	9	8	3	6	11	12	4	8
% Below	16%	13%	10%	20%	24%	17%	14%	22%	0%
% Met	45%	58%	65%	70%	55%	47%	45%	63%	72%
% Above	39%	29%	26%	10%	21%	37%	41%	15%	28%

Table 12.–Arctic-Yukon-Kuskokwim Region Chinook, chum, coho, pink, and sockeye salmon escapements compared to escapement goals for the years 2009 to 2017.

	2009	2010	2011	2012	2013	2014	2015	2016	2017
CHINOOK SALMON									
Number Below	5	12	11	12	19	5	3	7	3
Number Met	10	6	7	4	4	7	12	7	12
Number Above	4	0	2	1	0	8	6	5	5
% Below	26%	67%	55%	71%	83%	25%	14%	37%	15%
% Met	53%	33%	35%	24%	17%	35%	57%	37%	60%
% Above	21%	0%	10%	6%	0%	40%	29%	26%	25%
SUMMER CHUM SALMON									
Number Below	10	0	0	5	1	1	1	1	0
Number Met	3	3	4	0	2	1	1	2	1
Number Above	3	6	6	2	5	7	5	4	6
% Below	63%	0%	0%	71%	13%	11%	14%	14%	0%
% Met	19%	33%	40%	0%	25%	11%	14%	29%	14%
% Above	19%	67%	60%	29%	63%	78%	71%	57%	86%
YUKON RIVER SUMMER CHUM SALMON									
Number Below	2	0	0	0	0	1	0	1	0
Number Met	0	2	2	2	2	1	2	1	2
Number Above	0	0	0	0	0	0	0	1	1
% Below	100%	0%	0%	0%	0%	50%	0%	33%	0%
% Met	0%	100%	100%	100%	100%	50%	100%	33%	67%
% Above	0%	0%	0%	0%	0%	0%	0%	33%	33%
YUKON RIVER FALL CHUM SALMON									
Number Below	0	2	1	0	0	1	2	0	0
Number Met	5	2	1	4	1	2	3	1	1
Number Above	1	4	6	4	7	5	3	5	5
% Below	0%	25%	13%	0%	0%	13%	25%	0%	0%
% Met	83%	25%	13%	50%	13%	25%	38%	17%	17%
% Above	17%	50%	75%	50%	88%	63%	38%	83%	83%
COHO SALMON									
Number Below	0	0	0	1	0	1	0	0	0
Number Met	3	3	5	3	3	1	2	3	2
Number Above	2	2	1	0	0	1	2	1	0
% Below	0%	0%	0%	25%	0%	33%	0%	0%	0%
% Met	60%	60%	83%	75%	100%	33%	50%	75%	100%
% Above	40%	40%	17%	0%	0%	33%	50%	25%	0%

-continued-

Table 12.–Page 2 of 2.

	2009	2010	2011	2012	2013	2014	2015	2016	2017
PINK SALMON									
Number Below	0	0	0	0	0	0	0	0	0
Number Met	4	4	4	4	3	3	3	3	3
Number Above	0	0	0	0	0	0	0	0	0
% Below	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Met	100%	100%	100%	100%	100%	100%	100%	100%	100%
% Above	0%	0%	0%	0%	0%	0%	0%	0%	0%
SOCKEYE SALMON									
Number Below	2	2	1	0	0	0	0	0	0
Number Met	1	3	3	3	4	2	1	2	0
Number Above	0	0	0	0	1	3	5	4	2
% Below	67%	40%	25%	0%	0%	0%	0%	0%	0%
% Met	33%	60%	75%	100%	80%	40%	17%	33%	0%
% Above	0%	0%	0%	0%	20%	60%	83%	67%	100%

Table 13.–Westward Region (Alaska Peninsula/Aleutian Islands, Kodiak, and Chignik areas) Chinook, chum, coho, pink, and sockeye salmon escapements compared to escapement goals for the years 2009 to 2017.

	2009	2010	2011	2012	2013	2014	2015	2016	2017
CHINOOK SALMON									
Number Below	3	1	1	1	4	2	2	0	4
Number Met	1	2	3	3	0	1	2	3	0
Number Above	0	1	0	0	0	1	0	1	0
% Below	75%	25%	25%	25%	100%	50%	50%	0%	100%
% Met	25%	50%	75%	75%	0%	25%	50%	75%	0%
% Above	0%	25%	0%	0%	0%	25%	0%	25%	0%
CHUM SALMON									
Number Below	3	2	1	4	1	5	1	2	0
Number Met	5	7	8	5	7	3	4	4	4
Number Above	1	0	0	0	0	0	3	2	3
% Below	33%	22%	11%	44%	13%	63%	13%	25%	0%
% Met	56%	78%	89%	56%	88%	38%	50%	50%	57%
% Above	11%	0%	0%	0%	0%	0%	38%	25%	43%
COHO SALMON									
Number Below	2	1	2	2	0	0	1	2	2
Number Met	3	3	5	5	6	6	5	4	4
Number Above	1	0	0	0	0	0	0	0	0
% Below	33%	25%	29%	29%	0%	0%	17%	33%	33%
% Met	50%	75%	71%	71%	100%	100%	83%	67%	67%
% Above	17%	0%	0%	0%	0%	0%	0%	0%	0%
PINK SALMON									
Number Below	0	2	0	2	0	2	0	4	0
Number Met	4	3	4	3	3	2	1	0	0
Number Above	1	0	1	0	1	0	3	0	4
% Below	0%	40%	0%	40%	0%	50%	0%	100%	0%
% Met	80%	60%	80%	60%	75%	50%	25%	0%	0%
% Above	20%	0%	20%	0%	25%	0%	75%	0%	100%
SOCKEYE SALMON									
Number Below	5	3	5	4	3	6	5	1	1
Number Met	16	21	21	22	22	15	8	15	13
Number Above	7	5	4	4	5	8	15	13	14
% Below	18%	10%	17%	13%	10%	21%	18%	3%	4%
% Met	57%	72%	70%	73%	73%	52%	29%	52%	46%
% Above	25%	17%	13%	13%	17%	28%	54%	45%	50%

Table 14.–Summary of Southeast Region salmon escapements compared against escapement goals for the years 2009 to 2017.

Southeast Region		2009	2010	2011	2012	2013	2014	2015	2016	2017
Stocks with Escapement Data		48	47	49	49	51	50	51	50	49
Below Lower Goal	Number	16	3	8	13	14	9	3	20	15
	Percent	33%	6%	16%	27%	27%	18%	6%	40%	31%
Goal Met	Number	24	34	28	26	24	25	30	22	24
	Percent	50%	72%	57%	53%	47%	50%	59%	44%	49%
Above Upper Goal	Number	8	10	13	10	13	16	18	8	10
	Percent	17%	21%	27%	20%	25%	32%	35%	16%	20%

Table 15.–Summary of Central Region (Bristol Bay, Cook Inlet, Prince William Sound/Copper River) salmon escapements compared against escapement goals for the years 2009 to 2017.

Central Region		2009	2010	2011	2012	2013	2014	2015	2016	2017
Stocks with Escapement Data		101	92	96	102	103	108	103	95	103
Below Lower Goal	Number	29	27	30	34	20	30	11	31	16
	Percent	29%	29%	31%	33%	19%	28%	11%	33%	16%
Goal Met	Number	44	49	49	57	56	58	49	50	56
	Percent	44%	53%	51%	56%	54%	54%	48%	53%	54%
Above Upper Goal	Number	28	16	17	11	27	20	43	14	31
	Percent	28%	17%	18%	11%	26%	19%	42%	15%	30%

Table 16.–Summary of Arctic-Yukon-Kuskokwim Region salmon escapements compared against escapement goals for the years 2009 to 2017.

AYK Region		2009	2010	2011	2012	2013	2014	2015	2016	2017
Stocks with Escapement Data		55	51	54	45	52	50	51	48	43
Below Lower Goal	Number	19	16	13	18	20	9	6	9	3
	Percent	35%	31%	24%	40%	38%	18%	12%	19%	7%
Goal Met	Number	26	23	26	20	19	17	24	19	21
	Percent	47%	45%	48%	44%	37%	34%	47%	40%	49%
Above Upper Goal	Number	10	12	15	7	13	24	21	20	19
	Percent	18%	24%	28%	16%	25%	48%	41%	42%	44%

Table 17.–Summary of Westward Region (Alaska Peninsula/Aleutian Islands, Kodiak, and Chignik areas) salmon escapements compared against escapement goals for the years 2009 to 2017.

Westward Region		2009	2010	2011	2012	2013	2014	2015	2016	2017
Stocks with Escapement Data		52	51	55	55	52	51	50	51	49
Below Lower Goal	Number	13	9	9	13	8	15	9	9	7
	Percent	25%	18%	16%	24%	15%	29%	18%	18%	14%
Goal Met	Number	29	36	41	38	38	27	20	26	21
	Percent	56%	71%	75%	69%	73%	53%	40%	51%	43%
Above Upper Goal	Number	10	6	5	4	6	9	21	16	21
	Percent	19%	12%	9%	7%	12%	18%	42%	31%	43%

Table 18.–Statewide summary of salmon stocks of concern in Alaska.

Region	System	Species	Year Designated[a]	Level of Concern	Year Last Reviewed[a]
Southeast	Chilkat River	Chinook	2017	Management	2017
	King Salmon River	Chinook	2017	Management	2017
	Unuk River	Chinook	2017	Management	2017
	McDonald Lake	sockeye	2017	Management	2017
Central	McNeil River	chum	2016	Management	2016
	Susitna (Yentna) River	sockeye	2007	Yield	2016
	Chuitna River	Chinook	2010	Management	2016
	Theodore River	Chinook	2010	Management	2016
	Lewis River	Chinook	2010	Management	2016
	Alexander Creek	Chinook	2010	Management	2016
	Willow Creek	Chinook	2010	Yield	2016
	Goose Creek[b]	Chinook	2010	Management	2016
	Sheep Creek	Chinook	2013	Management	2016
Westward	Karluk River	Chinook	2010	Management	2016
	Swanson Lagoon	sockeye	2012	Management	2015
AYK	Yukon River	Chinook	2000	Yield	2015
	Norton Sound Subdistrict 5 & 6	Chinook	2003	Yield	2015
	Norton Sound Subdistrict 2 & 3	chum	2000	Yield	2015

[a] Indicates start of BOF cycle in which *stock of concern* status was designated or last reviewed (e.g., 2017/2018 BOF cycle = 2017).

[b] Goose Creek Chinook salmon was originally designated a stock of yield concern then modified to stock of management concern in 2013.

Table 19.–Methods used to enumerate and develop escapement goals for Southeast Region Chinook, chum, coho, pink, and sockeye salmon stocks.

System	Enumeration Method	Goal Development Method	References
CHINOOK SALMON			
Blossom River	Peak Aerial Survey[a]	SRA	Fleischman et al. 2011
Keta River	Peak Aerial Survey	SRA	Fleischman et al. 2011
Unuk River	Peak Foot/Aerial Survey (Expanded)	SRA	Hendrich et al. 2008
Chickamin River	Peak Aerial Survey	SRA	McPherson and Carlile 1997
Andrew Creek	Peak Aerial Survey (Expanded)	SRA	Clark et al. 1998
Stikine River	Mark–Recapture	SRA	Bernard et al. 2000
King Salmon River	Peak Aerial Survey (Expanded)	SRA	McPherson and Clark 2001
Taku River	Mark–Recapture	SRA	McPherson et al. 2010
Chilkat River	Mark–Recapture	Theoretical SRA	Ericksen and McPherson 2004; inriver: 5AAC 33.384
Klukshu (Alsek) River	Weir Count	SRA	Bernard and Jones 2010
Alsek River	Weir Count (Expanded)	SRA	Bernard and Jones 2010
Situk River	Weir Count	SRA	McPherson et al. 2005
CHUM SALMON			
Southern Southeast Summer	Peak Aerial Survey	Percentile	Piston and Heinl 2014
Northern Southeast Inside Summer	Peak Aerial Survey	Percentile	Piston and Heinl 2011a
Northern Southeast Outside Summer	Peak Aerial Survey	Percentile	Piston and Heinl 2014
Cholmondeley Sound Fall	Peak Aerial Survey	Percentile	Eggers and Heinl 2008
Port Camden Fall	Peak Aerial Survey	Risk Analysis	Eggers and Heinl 2008
Security Bay Fall	Peak Aerial Survey	Percentile	Eggers and Heinl 2008
Excursion River Fall	Peak Aerial Survey	Percentile	Eggers and Heinl 2008
Chilkat River Fall	Fish Wheel (Expanded)	SRA	Piston and Heinl 2014
COHO SALMON			
Hugh Smith Lake	Weir Count	SRA	Shaul et al. 2009
Klawock River	Weir Count	Theoretical SRA	Der Hovanisian 2013
Taku River	Mark–Recapture	SRA	Pestal and Johnson 2015
Auke Creek	Weir Count	SRA	Clark et al. 1994
Montana Creek	Foot Survey	Theoretical SRA	Clark 2005
Peterson Creek	Foot Survey	Theoretical SRA	Clark 2005
Ketchikan Survey Index	Peak Aerial Survey	Theoretical SRA	Shaul and Tydingco 2006
Sitka Survey Index	Foot Survey	Theoretical SRA	Shaul and Tydingco 2006
Ford Arm Creek	Weir Count	SRA	Clark et al. 1994; Shaul et. al 2014

-continued-

Table 19.–Page 2 of 2.

System	Enumeration Method	Goal Development Method	References
Berners River	Peak Aerial Survey, Foot Survey	SRA	Clark et al. 1994
Chilkat River	Mark–Recapture, Foot Survey	SRA	Ericksen and Fleischman 2006
Tawah Creek (Lost River)	Boat Survey	Percentile	Heinl et al. 2014a
Situk River	Boat Survey	SRA	Clark and Clark 1994
Tsiu/Tsivat Rivers	Peak Aerial Survey	SRA	Clark and Clark 1994
PINK SALMON			
Southern Southeast	Peak Aerial Survey	Yield Analysis	Heinl et al. 2008
Northern Southeast Inside	Peak Aerial Survey	Yield Analysis	Heinl et al. 2008
Northern Southeast Outside	Peak Aerial Survey	Yield Analysis	Heinl et al. 2008
Situk River	Weir Index	Percentile	Piston and Heinl 2011b
SOCKEYE SALMON			
Hugh Smith Lake	Weir Count	Risk Analysis, Theoretical SRA	Geiger et al. 2003; OEG: 5 AAC 33.390
McDonald Lake	Expanded Foot Survey	SRA	Eggers et al. 2009a
Mainstem Stikine River	Run Reconstruction	Professional Judgement[b]	TTC 1987; TTC 1990
Tahltan Lake	Weir Count	SRA	Humphreys et al. 1994; TTC 1993
Speel Lake	Weir Count	SRA	Heinl et al. 2014b
Taku River	Mark–Recapture	Professional Judgement[b]	TTC 1986
Redoubt Lake	Weir Count	SRA	Geiger 2003; OEG: 5 AAC 01.760 (a)
Chilkat Lake	Sonar	SRA	Eggers et al. 2010
Chilkoot Lake	Weir Count	SRA	Eggers et al. 2009b
East Alsek-Doame River	Peak Aerial Survey	SRA	Clark et al. 2003
Klukshu River	Weir Count	SRA	Eggers and Bernard 2011
Alsek River	Weir Count	SRA	Eggers and Bernard 2011
Lost River	Peak Foot Survey, Boat Survey	Percentile	Eggers et al. 2008
Situk River	Weir Count	SRA	Clark et al. 2002

Note: SRA = Spawner–recruit analysis.

[a] One or more aerial surveys are attempted during the peak of the run. Peak count is used to index the escapement.

[b] Transboundary Technical Committee, Pacific Salmon Commission.

Table 20.–Methods used to enumerate and develop escapement goals for Central Region (Bristol Bay, Cook Inlet, and Prince William Sound/Copper River) Chinook, chum, coho, pink, and sockeye salmon stocks.

System	Enumeration Method	Goal Development Method	References
CHINOOK SALMON			
Bristol Bay			
Nushagak River	Sonar	SRA, Yield Analysis	Fair et al. 2012
Alagnak River	Single Aerial Survey[a]	Risk Analysis	Baker et al. 2006; Fair et al. 2004
Upper Cook Inlet			
Alexander Creek	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished[b]
Campbell Creek	Single Foot Survey	Risk Analysis	Fair et al. 2010
Chuitna River	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished[b]
Chulitna River	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished[b]
Clear (Chunilna) Creek	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished[b]
Crooked Creek	Weir Count	Percentile	Bue and Hasbrouck, unpublished[b]
Deshka River	Weir Count	SRA	Bue and Hasbrouck, unpublished[b]; Fair et al. 2010
Goose Creek	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished[b]
Kenai R - Early Run (large fish)	Sonar	SRA	Erickson et al. 2017; Fleischman and Reimer 2017; OEG: 5 AAC 57.160 (b)
Kenai R - Late Run (large fish)	Sonar	SRA	Erickson et al. 2017; Fleischman and Reimer 2017
Lake Creek	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished[b]
Lewis River	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished[b]
Little Susitna River (Aerial)	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished[b]
Little Susitna River (Weir)	Weir Count	Percentile	Erickson et al. 2017
Little Willow Creek	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished[b]
Montana Creek	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished[b]
Peters Creek	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished[b]
Prairie Creek	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished[b]
Sheep Creek	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished[b]
Talachulitna River	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished[b]
Theodore River	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished[b]
Willow Creek	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished[b]
Lower Cook Inlet			
Anchor River	Sonar, Weir Count	SRA	Otis et al. 2016
Deep Creek	Single Aerial Survey	Percentile	Otis et al. 2016
Ninilchik River	Weir Count	Percentile	Otis et al. 2016
Prince William Sound			
Copper River	Mark–Recapture	Empirical Observation	Bue et al. 2002; Savereide 2001

-continued-

Table 20.–Page 2 of 5.

System	Enumeration Method	Goal Development Method	References
CHUM SALMON			
Bristol Bay			
Nushagak River	Sonar	Risk Analysis	Fair et al. 2012
Upper Cook Inlet			
Clearwater Creek	Peak Aerial Survey[c]	Percentile	Erickson et al. 2017
Lower Cook Inlet			
Port Graham River	Multiple Foot Surveys[d]	Percentile	Otis et al. 2016
Dogfish Lagoon	Multiple Foot Surveys	Percentile	Otis et al. 2016
Rocky River	Multiple Foot Surveys	Percentile	Otis et al. 2016
Port Dick Creek	Multiple Aerial or Foot Surveys	Percentile	Otis et al. 2016
Island Creek	Multiple Aerial or Foot Surveys	Percentile	Otis et al. 2016
Big Kamishak River	Multiple Aerial Surveys	Percentile	Otis et al. 2016
Little Kamishak River	Multiple Aerial Surveys	Percentile	Otis et al. 2016
McNeil River	Multiple Aerial Surveys	Percentile	Otis and Szarzi 2007
Bruin River	Multiple Aerial Surveys	Percentile	Otis et al. 2016
Ursus Cove	Multiple Aerial Surveys	Percentile	Otis et al. 2016
Cottonwood Creek	Multiple Aerial Surveys	Percentile	Otis et al. 2016
Iniskin Bay	Multiple Aerial Surveys	Percentile	Otis et al. 2016
Prince William Sound			
Eastern District	Multiple Aerial Surveys	Risk Analysis	Evenson et al. 2008
Northern District	Multiple Aerial Surveys	Risk Analysis	Evenson et al. 2008
Coghill District	Multiple Aerial Surveys	Risk Analysis	Evenson et al. 2008
Northwestern District	Multiple Aerial Surveys	Risk Analysis	Evenson et al. 2008
Southeastern District	Multiple Aerial Surveys	Risk Analysis	Evenson et al. 2008
COHO SALMON			
Bristol Bay			
Nushagak River	Sonar	SRA	Fair et al. 2012
Upper Cook Inlet			
Deshka River	Weir Count	Percentile	Erickson et al. 2017
Fish Creek (Knik)	Weir Count	Percentile	Bue and Hasbrouck, unpublished[b]; Fair et al. 2010
Jim Creek	Single Foot Survey	Percentile	Fair et al. 2013
Little Susitna River	Weir Count	Percentile	Bue and Hasbrouck, unpublished[b]
Lower Cook Inlet			
There are no coho salmon stocks with escapement goals in Lower Cook Inlet			

-continued-

Table 20.–Page 3 of 5.

System	Enumeration Method	Goal Development Method	References
Prince William Sound			
Copper River Delta	Peak Aerial Survey	Percentile	Bue et al. 2002
Bering River	Peak Aerial Survey	Percentile	Bue et al. 2002
PINK SALMON			
Bristol Bay			
Nushagak River	Sonar	Percentile	Fair et al. 2012
Upper Cook Inlet			
There are no pink salmon stocks with escapement goals in Upper Cook Inlet			
Lower Cook Inlet			
Humpy Creek	Multiple Foot Surveys	Percentile	Otis et al. 2016
China Poot Creek	Multiple Foot Surveys	Percentile	Otis et al. 2016
Tutka Creek	Multiple Foot Surveys	Percentile	Otis 2001
Barabara Creek	Multiple Foot Surveys	Percentile	Otis et al. 2016
Seldovia Creek	Multiple Foot Surveys	Percentile	Otis et al. 2016
Port Graham River	Multiple Foot Surveys	Percentile	Otis et al. 2016
Dogfish Lagoon Creeks	Multiple Aerial or Foot Surveys	Percentile	Otis et al. 2016
Port Chatham	Multiple Foot Surveys	Percentile	Otis et al. 2016
Windy Creek Right	Multiple Foot Surveys	Percentile	Otis et al. 2016
Windy Creek Left	Multiple Foot Surveys	Percentile	Otis et al. 2016
Rocky River	Multiple Foot Surveys	Percentile	Otis et al. 2016
Port Dick Creek	Multiple Aerial or Foot Surveys	Percentile	Otis et al. 2016
Island Creek	Multiple Aerial or Foot Surveys	Percentile	Otis et al. 2016
S. Nuka Island Creek	Multiple Aerial or Foot Surveys	Percentile	Otis et al. 2016
Desire Lake Creek	Multiple Aerial Surveys	Percentile	Otis et al. 2016
Bruin River	Multiple Aerial Surveys	Percentile	Otis et al. 2016
Sunday Creek	Multiple Aerial Surveys	Percentile	Otis et al. 2016
Brown's Peak Creek	Multiple Aerial Surveys	Percentile	Otis et al. 2016
Prince William Sound			
Eastern District (even year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Eastern District (odd year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Northern District (even year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Northern District (odd year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Coghill District (even year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Coghill District (odd year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Northwestern District (even year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011

-continued-

Table 20.–Page 4 of 5.

System	Enumeration Method	Goal Development Method	References
Northwestern District (odd year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Eshamy District (even year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Eshamy District (odd year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Southwestern District (even year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Southwestern District (odd year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Montague District (even year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Montague District (odd year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Southeastern District (even year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Southeastern District (odd year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
SOCKEYE SALMON			
Bristol Bay			
Kvichak River	Tower Count	SRA, Yield Analysis	Baker et al. 2009
Alagnak River	Tower Count	Risk Analysis	Baker et al. 2006
	Single Aerial Survey	Risk Analysis	Erickson et al. 2015
Naknek River	Tower Count	SRA, Yield Analysis	Fair et al. 2012; Erickson et al. 2015, Appendices F2 and F3; OEG: 5 AAC 06.360 (f)
Egegik River	Tower Count	SRA, Yield Analysis	Fair et al. 2012; Erickson et al. 2015, Appendices F2 and F3
Ugashik River	Tower Count	SRA, Yield Analysis	Fair et al. 2012; Erickson et al. 2015, Appendices F2 and F3
Wood River	Tower Count	SRA, Yield Analysis	Fair et al. 2012; Erickson et al. 2015, Appendices F2 and F3
Igushik River	Tower Count	SRA, Yield Analysis	Fair et al. 2012; Erickson et al. 2015, Appendices F2 and F3
Nushagak River	Sonar	SRA, Yield Analysis	Fair et al. 2012; OEG: 5 AAC 06.358 (c) (1) (B)
Togiak River	Tower Count	SRA, Yield Analysis	Baker et al. 2009; Fair et al. 2004
Upper Cook Inlet			
Fish Creek (Knik)	Weir Count	Percentile	Erickson et al. 2017
Kasilof River	Sonar	SRA	Fair et al. 2010; OEG: 5 AAC 21.365 (b)
Kenai River	Sonar	Brood Interaction Simulation Model	Carlson et al. 1999; Clark et al. 2007; Fair et al. 2010 OEG: 5 AAC 21.360 (b) (1)
Packers Creek	Weir Count	Percentile	Bue and Hasbrouck, unpublished[b]; Fair et al. 2007; Hasbrouck and Edmundson 2007
Russian River - Early Run	Weir Count	SRA	Fair et al. 2010
Russian River - Late Run	Weir Count	Percentile	Hasbrouck and Edmundson 2007
Chelatna Lake	Weir Count	Percentile	Erickson et al. 2017
Judd Lake	Weir Count	Percentile	Erickson et al. 2017
Larson Lake	Weir Count	Percentile	Erickson et al. 2017
Lower Cook Inlet			
English Bay	Peak Aerial Survey, Weir Count	Percentile	Otis 2001
Delight Lake	Peak Aerial Survey	Percentile	Otis et al. 2016

-continued-

Table 20.–Page 5 of 5.

System	Enumeration Method	Goal Development Method	References
Desire Lake	Peak Aerial Survey	Percentile	Otis et al. 2016
Bear Lake	Weir Count	Percentile	Otis 2001
Aialik Lake	Peak Aerial Survey	Percentile	Otis et al. 2016
Mikfik Lake	Video	Percentile	Otis et al. 2016
Chenik Lake	Video, Weir Count	Percentile	Otis et al. 2016
Amakdedori Creek	Peak Aerial Survey	Percentile	Otis et al. 2016
Prince William Sound			
Upper Copper River	Sonar	Percentile	Fair et al. 2011
Copper River Delta	Peak Aerial Survey	Percentile	Bue et al. 2002
Bering River	Peak Aerial Survey	Percentile	Fair et al. 2011
Coghill Lake	Weir Count	SRA	Fair et al. 2011
Eshamy Lake	Weir Count	SRA	Fair et al. 2008

Note: SRA = Spawner–recruit analysis.

[a] Single survey done around time of presumed peak of the run with no expansion of counts.

[b] Bue, B. G., and J. J. Hasbrouck. Escapement goal review of salmon stocks of Upper Cook Inlet. Alaska Department of Fish and Game, Report to the Alaska Board of Fisheries, November 2001 (and February 2002), Anchorage, unpublished document.

[c] Multiple aerial surveys are attempted throughout the run. Peak count is used to index the escapement.

[d] Multiple surveys throughout run (at least 1 per week). Area under the curve method used to estimate annual escapement.

Table 21.–Methods used to enumerate and develop escapement goals for Arctic-Yukon-Kuskokwim Region Chinook, chum, coho, pink, and sockeye salmon stocks.

System	Enumeration Method	Goal Development Method	References
CHINOOK SALMON			
Kuskokwim Area			
North (Main) Fork Goodnews River	Single Aerial Survey[a]	Percentile	ADF&G 2004
Middle Fork Goodnews River	Weir Count	SRA	Brannian et al. 2006; Molyneaux and Brannian 2006
Kanektok River	Single Aerial Survey	Percentile	Conitz et al. 2015
Kuskokwim River (entire area)	Run Reconstruction[b]	SRA	Hamazaki et al. 2012
Kogrukluk River	Weir Count	Proportion of Kuskokwim River goal	Hamazaki et al. 2012
Kwethluk River	Weir Count	Proportion of Kuskokwim River goal	Hamazaki et al. 2012
George River	Weir Count	Proportion of Kuskokwim River goal	Hamazaki et al. 2012
Kisaralik River	Single Aerial Survey	Percentile	ADF&G 2004
Aniak River	Single Aerial Survey	Percentile	ADF&G 2004
Salmon River (Aniak R)	Single Aerial Survey	Percentile	ADF&G 2004
Holitna River	Single Aerial Survey	Percentile	ADF&G 2004
Cheeneetnuk River (Stony R)	Single Aerial Survey	Percentile	ADF&G 2004
Gagarayah River (Stony R)	Single Aerial Survey	Percentile	ADF&G 2004
Salmon River (Pitka Fork)	Single Aerial Survey	Percentile	ADF&G 2004
Yukon River			
East Fork Andreafsky River	Weir Count	Percentile	Volk et al. 2009
West Fork Andreafsky River	Peak Aerial Survey[c]	Percentile	ADF&G 2004
Anvik River	Peak Aerial Survey	Percentile	ADF&G 2004
Nulato River (forks combined)	Peak Aerial Survey	Percentile	ADF&G 2004
Chena River	Tower, Mark–Recapture	SRA	Evenson 2002
Salcha River	Tower, Mark–Recapture	SRA	Evenson 2002
Canada Mainstem	Sonar	Agreement (U.S./Canada Joint Technical Committee)	JTC 2010; JTC 2013
Norton Sound			
Kwiniuk River	Tower Count	Percentile	Conitz et al. 2015
North River (Unalakleet R)	Tower Count	Percentile	ADF&G 2004
CHUM SALMON			
Kuskokwim Area			
Middle Fork Goodnews River	Weir Count	Percentile	ADF&G 2004
Kogrukluk River	Weir Count	Percentile	ADF&G 2004

-continued-

Table 21.–Page 2 of 4.

System	Enumeration Method	Goal Development Method	References
Yukon River Summer Chum			
Yukon River Drainage	Sonar, Weir Count, Tower Count, Aerial Survey	SRA	Conitz et al. 2015; Hamazaki and Conitz 2015
East Fork Andreafsky River	Weir Count	SRA	Fleischman and Evenson 2010; Volk et al. 2009
Anvik River	Sonar	SRA	ADF&G 2004
Yukon River Fall Chum			
Yukon River Drainage	Calculated - Multiple Surveys	SRA	Fleischman and Borba 2009; Volk et al. 2009
Tanana River	Mark–Recapture	SRA	ADF&G 2004; Eggers 2001
Delta River	Multiple Foot Surveys	Proportion of Tanana River Goal	ADF&G 2004; Eggers 2001
Chandalar River	Sonar	Proportion of Upper Yukon River Tributaries Goal	ADF&G 2004; Eggers 2001
Fishing Branch River (Canada)	Weir Count	Agreement (U.S./Canada Joint Technical Committee) Interim Management Escapement Goal Percentile	JTC 2008; JTC 2013[e]
Yukon R. Mainstem (Canada)	Mark–Recapture	Agreement (U.S./Canada Joint Technical Committee) Interim Management Escapement Goal SRA	JTC 2010; JTC 2015
Norton Sound			
Subdistrict 1 Aggregate	Calculated - Multiple Surveys	SRA	Clark 2001a
Nome River	Weir Count	Proportion of Aggregate Goal	ADF&G 2004; Clark 2001a; OEG: 5 AAC 04.358 (a) (2)
Snake River	Tower/Weir Count	Proportion of Aggregate Goal	ADF&G 2004; Clark 2001a; OEG: 5 AAC 04.358 (a) (1)
Eldorado River	Peak Aerial Survey (Expanded)	Proportion of Aggregate Goal	ADF&G 2004; Clark 2001a; OEG: 5 AAC 04.358 (a) (3)
Kwiniuk River	Tower Count	SRA	ADF&G 2004; Clark 2001b; OEG: 5 AAC 04.390 (b) (1) (A) (i)
Tubutulik River	Peak Aerial Survey (Expanded)	SRA	ADF&G 2004; Clark 2001b OEG: 5 AAC 04.390 (b) (1) (A) (ii)
Kotzebue Sound			
Kotzebue Sound Aggregate	Peak Aerial Survey (Expanded)	SRA	Brannian et al. 2006; Eggers and Clark 2006
Noatak and Eli Rivers	Peak Aerial Survey	Proportion of Aggregate Goal	Brannian et al. 2006; Eggers and Clark 2006
Upper Kobuk w/Selby River	Peak Aerial Survey	Proportion of Aggregate Goal	Brannian et al. 2006; Eggers and Clark 2006
Salmon River	Peak Aerial Survey	Proportion of Aggregate Goal	Brannian et al. 2006; Eggers and Clark 2006
Tutuksuk River	Peak Aerial Survey	Proportion of Aggregate Goal	Brannian et al. 2006; Eggers and Clark 2006
Squirrel River	Peak Aerial Survey	Proportion of Aggregate Goal	Brannian et al. 2006; Eggers and Clark 2006
COHO SALMON			
Kuskokwim Area			
Middle Fork Goodnews River	Weir Count	Percentile	ADF&G 2004

-continued-

Table 21.–Page 3 of 4.

System	Enumeration Method	Goal Development Method	References
Kogrukluk River	Weir Count	Percentile	ADF&G 2004
Kwethluk River	Weir Count	Empirical Observation	Volk et al. 2009
Yukon River			
Delta Clearwater River	Boat Survey	Percentile	ADF&G 2004
Norton Sound			
Kwiniuk River	Peak Aerial Survey	Theoretical SRA	ADF&G 2004; Fair et al. 1999, memorandum[d]
Niukluk River/Ophir Creek	Peak Aerial Survey	Percentile	Conitz et al. 2015
North River (Unalakleet R.)	Peak Aerial Survey	Theoretical SRA	ADF&G 2004; Fair et al. 1999, memorandum[d]
PINK SALMON			
Kuskokwim Area			
There are no escapement goals for pink salmon in the Kuskokwim Management Area.			
Yukon River			
There are no escapement goals for pink salmon in the Yukon River drainage.			
Norton Sound			
Nome River (odd year)	Weir Count	Empirical Observation	ADF&G 2004
Nome River (even year)	Weir Count	Empirical Observation	ADF&G 2004; Fair et al. 1999, memorandum[d]
Kwiniuk River	Tower Count	Empirical Observation	ADF&G 2004
North River	Tower Count	Empirical Observation	ADF&G 2004
SOCKEYE SALMON			
Kuskokwim Area			
North (Main) Fork Goodnews River	Single Aerial Survey	Percentile	Conitz et al. 2015
Middle Fork Goodnews River	Weir Count	SRA	Brannian et al. 2006; Molyneaux and Brannian 2006
Kanektok River	Single Aerial Survey	Percentile	Conitz et al. 2015
Kogrukluk River	Weir Count	Percentile	Volk et al. 2009
Yukon River			
There are no escapement goals for Sockeye in the Yukon River drainage.			
Norton Sound			
Salmon Lake/Grand Central River	Peak Aerial Survey	Empirical Observation	ADF&G 2004; Fair et al. 1999, memorandum[d]
Glacial Lake	Peak Aerial Survey	Empirical Observation	ADF&G 2004; Fair et al. 1999, memorandum[d]

Note: SRA = Spawner–recruit analysis.

[a] Typically single survey done around time of presumed peak of the run with no expansion of counts.

[b] Bue et al. (2012).

[c] One or more aerial surveys are attempted during the peak of the run. Peak count is used to index the escapement.

[d] Fair, L., C. Lean, F. DeCicco, J. Magdanz, and R. McLean. Proposed Salmon BEGs for Norton Sound and Kotzebue Sound. ADF&G Memorandum, March 24, 1999.

[e] Assessment project at Fishing Branch weir no longer operated, and JTC has not reached consensus on future of this goal. Will remain same as 2013 by default (JTC 2015).

Table 22.–Methods used to enumerate and develop escapement goals for Westward Region (Alaska Peninsula/Aleutian Islands, Kodiak, and Chignik areas) Chinook, chum, coho, pink, and sockeye salmon stocks.

System	Enumeration Method	Goal Development Method	References
CHINOOK SALMON			
AK Peninsula			
Nelson River	Weir, Peak Aerial Survey[a]	Spawning Habitat Model, SRA	Nelson et al. 2006
Chignik			
Chignik River	Weir Count	SRA	Hasbrouck and Clark, unpublished[b]; Witteveen et al. 2005
Kodiak			
Karluk River	Weir Count	SRA	Nemeth et al. 2010
Ayakulik River	Weir Count	SRA	Schaberg et al. 2016
CHUM SALMON			
AK Peninsula			
Northern District	Peak Aerial Survey	SRA	Honnold et al. 2007b; Nelson and Lloyd 2001; Nelson et al. 2006
Northwestern District	Peak Aerial Survey	SRA	Honnold et al. 2007b; Nelson et al. 2006
Southeastern District	Peak Aerial Survey	Percentile	Nelson and Lloyd 2001; Nelson et al. 2006
South Central District	Peak Aerial Survey	Percentile	Nelson and Lloyd 2001; Nelson et al. 2006
Southwestern District	Peak Aerial Survey	Percentile	Nelson and Lloyd 2001; Nelson et al. 2006
Chignik			
Entire Chignik Area	Peak Aerial Survey	Percentile	Schaberg et al. 2015b
Kodiak			
Kodiak Archipelago Aggregate	Peak Aerial Survey	Percentile	Schaberg et al. 2016
COHO SALMON			
AK Peninsula			
Nelson River	Peak Aerial Survey	Risk Analysis	Nelson et al. 2006
Ilnik River	Peak Aerial Survey	Risk Analysis	Witteveen et al. 2009
Chignik			
There are no coho salmon stocks with escapement goals in Chignik Area			
Kodiak			
Pasagshak River	Foot Survey	Theoretical SRA	Nemeth et al. 2010
Buskin River	Weir Count	SRA	Sagalkin et al. 2013a; Schmidt et al. 2014
Olds River	Foot Survey	Theoretical SRA	Nemeth et al. 2010
American River	Foot Survey	Theoretical SRA	Nemeth et al. 2010

-continued-

Table 22.–Page 2 of 3.

System	Enumeration Method	Goal Development Method	References
PINK SALMON			
AK Peninsula			
South Peninsula Total	Peak Aerial Survey	SRA	Schaberg et al. 2015a
Chignik			
Entire Chignik Area (odd year)	Peak Aerial Survey	Percentile	Schaberg et al. 2015b
Entire Chignik Area (even year)	Peak Aerial Survey	Percentile	Schaberg et al. 2015b
Kodiak			
Mainland District	Peak Aerial Survey	SRA	Nemeth et al. 2010
Kodiak Archipelago (odd year)	Peak Aerial Survey	SRA	Nemeth et al. 2010
Kodiak Archipelago (even year)	Peak Aerial Survey	SRA	Nemeth et al. 2010
SOCKEYE SALMON			
AK Peninsula			
Cinder River	Peak Aerial Survey	Percentile	Schaberg et al. 2015a
Ilnik River	Weir Count	Percentile, Euphotic Volume Model, Zooplankton Model	Nelson and Lloyd 2001; Nelson et al. 2006
Meshik River	Peak Aerial Survey	Percentile	Schaberg et al. 2015a
Sandy River	Weir Count	Percentile	Honnold et al. 2007b
Bear River Early Run	Weir Count	Spawning Habitat Model, Percentile, Euphotic Volume Model, Zooplankton Model, Lake Surface Area	Nelson et al. 2006
Bear River Late Run	Weir Count	Spawning Habitat Model, Percentile, Euphotic Volume Model, Zooplankton Model, Lake Surface Area	Nelson et al. 2006
Nelson River	Weir Count	SRA	Nelson et al. 2006
Christianson Lagoon	Peak Aerial Survey	Spawning Habitat Model	Nelson and Lloyd 2001; Nelson et al. 2006
Swanson Lagoon	Peak Aerial Survey	Percentile	Honnold et al. 2007b
North Creek	Peak Aerial Survey	Percentile	Nelson and Lloyd 2001; Nelson et al. 2006
Orzinski Lake	Weir Count	Percentile	Nelson and Lloyd 2001; Nelson et al. 2006
Mortensen Lagoon	Peak Aerial Survey	Spawning Habitat Model, Percentile, Euphotic Volume Model, Zooplankton Model, Lake Surface Area	Nelson and Lloyd 2001; Nelson et al. 2006
Thin Point Lake	Peak Aerial Survey	Spawning Habitat Model, Percentile, Euphotic Volume Model, Zooplankton Model, Lake Surface Area	Nelson and Lloyd 2001; Nelson et al. 2006
McLees Lake	Weir Count	Percentile	Witteveen et al. 2009
Chignik			
Chignik River Early Run	Weir Count	Yield Analysis, Euphotic Volume Model, Zooplankton Model	Sagalkin et al. 2013b
Chignik River Late Run	Weir Count	SRA, Euphotic Volume Model, Zooplankton Model	Witteveen et al. 2007

-continued-

Table 22.–Page 3 of 3.

System	Enumeration Method	Goal Development Method	References
Kodiak			
Malina Creek	Peak Aerial Survey	Percentile, Zooplankton Model	Nelson et al. 2005
Afognak (Litnik) River	Weir Count	SRA	Nelson et al. 2005
Karluk River Early Run	Weir Count	SRA	Schaberg et al. 2016
Karluk River Late Run	Weir Count	SRA	Schaberg et al. 2016
Ayakulik River Early Run	Weir Count	Zooplankton Model, Empirical Observation	Nemeth et al. 2010
Ayakulik River Late Run	Weir Count	Zooplankton Model, Empirical Observation	Nemeth et al. 2010
Upper Station River Early Run	Weir Count	SRA	Nemeth et al. 2010
Upper Station River Late Run	Weir Count	SRA	Nelson et al. 2005
Frazer Lake	Weir Count	SRA	Honnold et al. 2007a
Saltery Lake	Weir Count	SRA, Zooplankton Model	Nemeth et al. 2010
Pasagshak River	Peak Aerial Survey	Percentile	Nemeth et al. 2010
Buskin Lake	Weir Count	SRA	Nemeth et al. 2010

Note: SRA = Spawner–recruit analysis.

[a] One or more aerial surveys are attempted during the peak of the run. Peak count is used to index the escapement.

[b] Hasbrouck, J. J., and R. A. Clark. *Unpublished*. Escapement goal review of Chinook salmon in the Ayakulik, Chignik, and Karluk rivers. Alaska Department of Fish and Game, Report to the Alaska Board of Fisheries, December 2001, Anchorage.

FIGURES

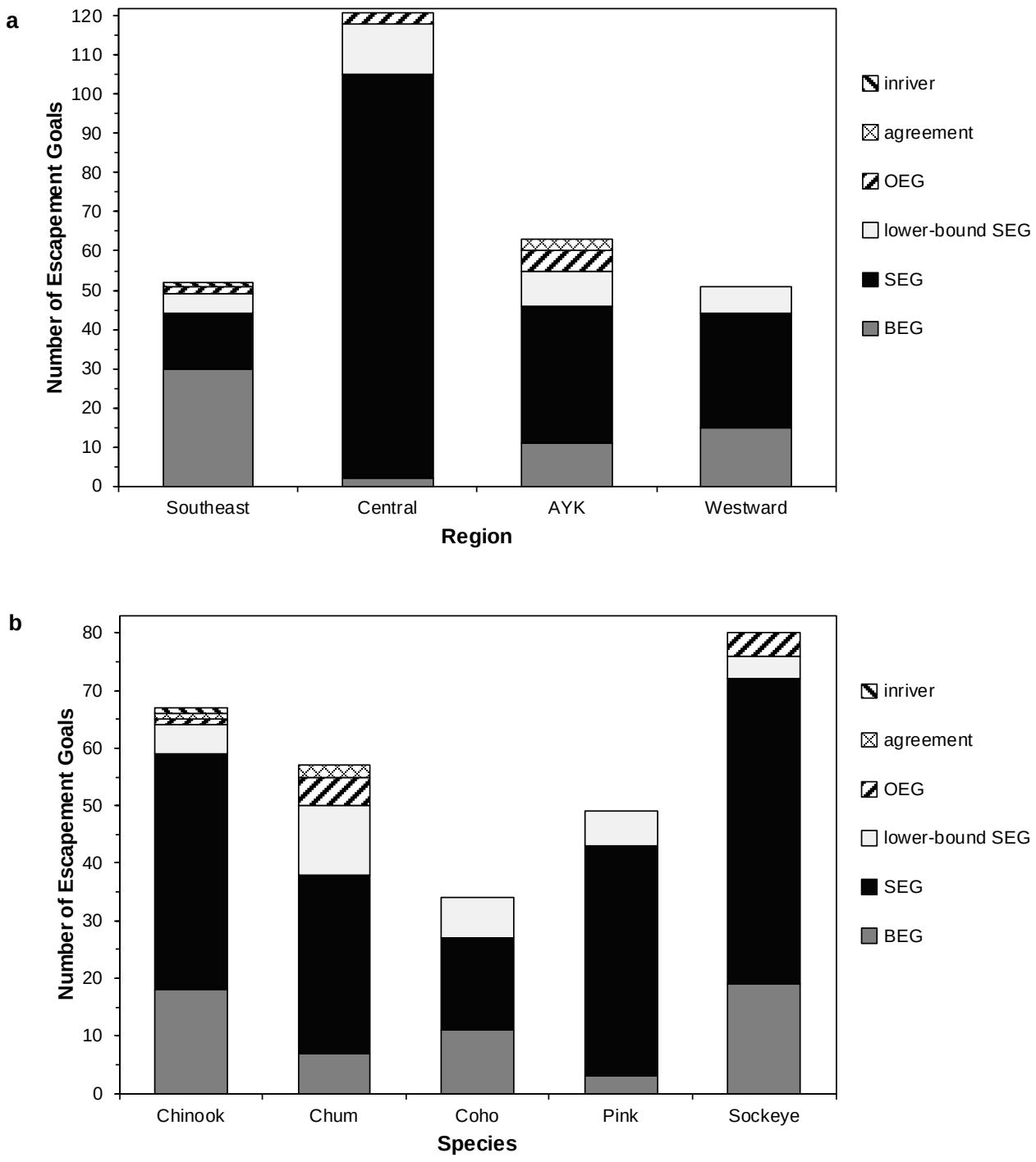

Figure 1.–Statewide summary of the 287 escapement goals in effect during the 2017 spawning season for the 4 Division of Commercial Fisheries by region (a) and by species (b).

Note: BEG is biological escapement goal, SEG is sustainable escapement goal, OEG is optimal escapement goal (set by the Alaska Board of Fisheries), agreement goals are established through international treaties, and inriver is inriver escapement goal (set by the Alaska Board of Fisheries).

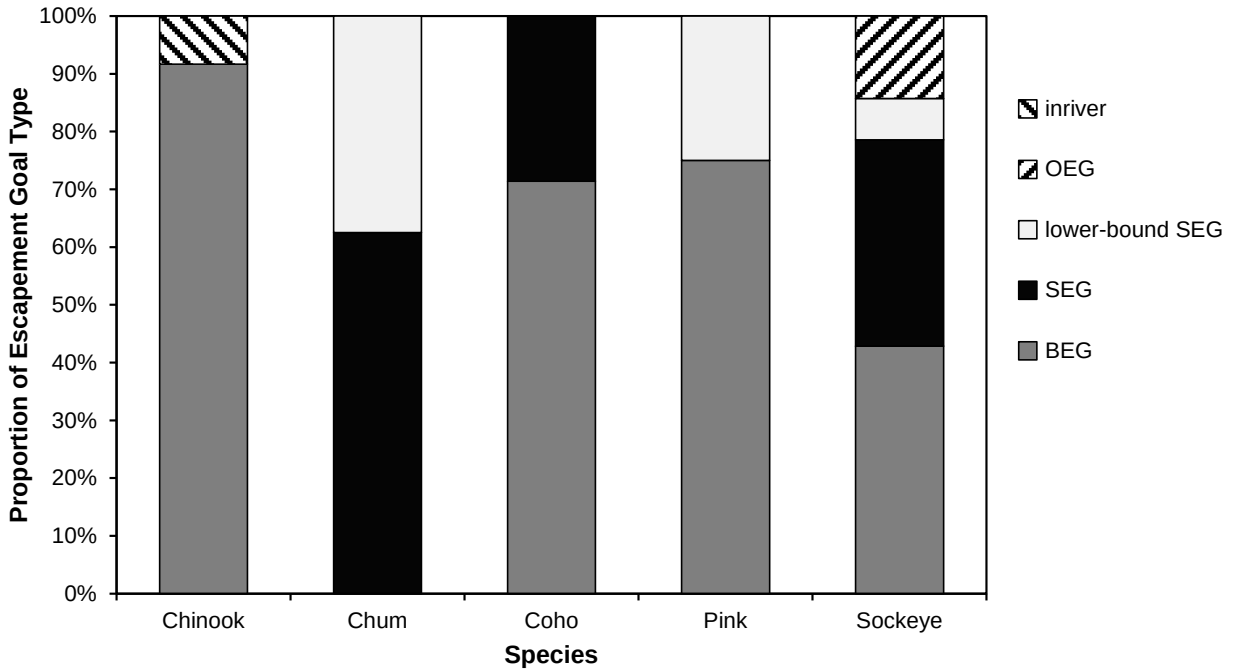

Figure 2.–Proportion of escapement goal types by species for the 52 escapement goals in Southeast Region.

Note: BEG is biological escapement goal, SEG is sustainable escapement goal, OEG is optimal escapement goal (set by the Alaska Board of Fisheries), and inriver is an inriver escapement goal (set by the Alaska Board of Fisheries).

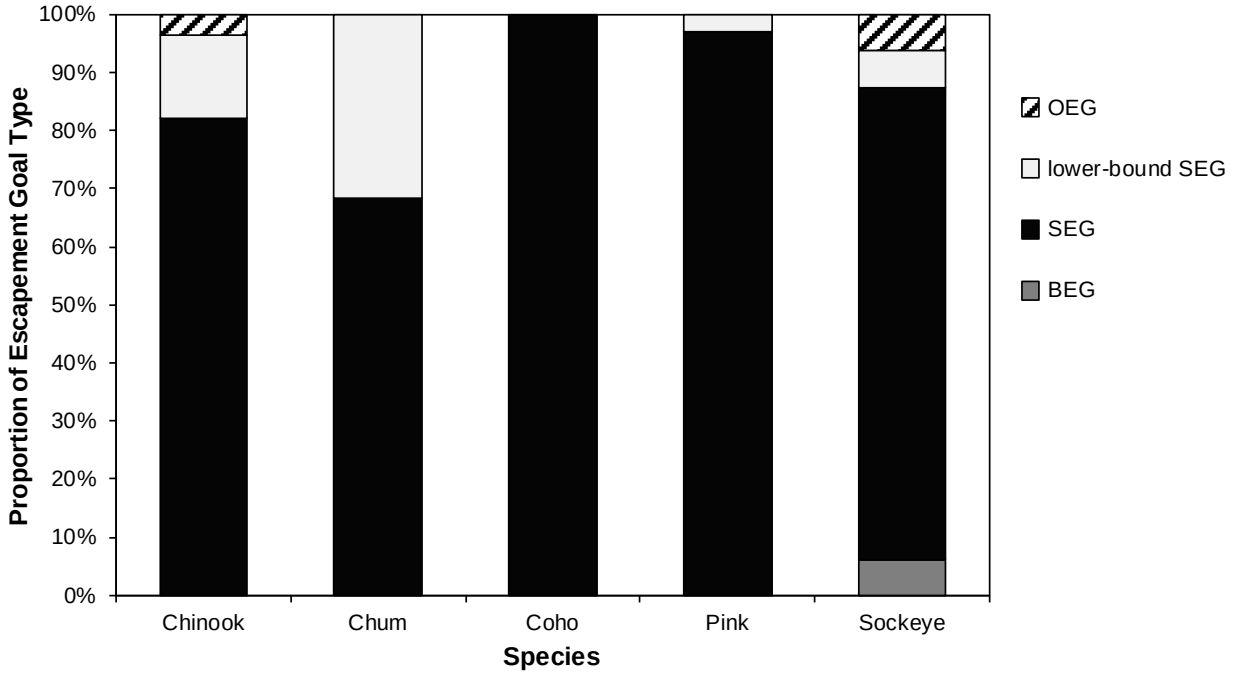

Figure 3.–Proportion of escapement goal types by species for the 121 escapement goals in Central Region (Bristol Bay, Cook Inlet, and Prince William Sound/Copper River).

Note: BEG is biological escapement goal, SEG is sustainable escapement goal, and OEG is optimal escapement goal (set by the Alaska Board of Fisheries).

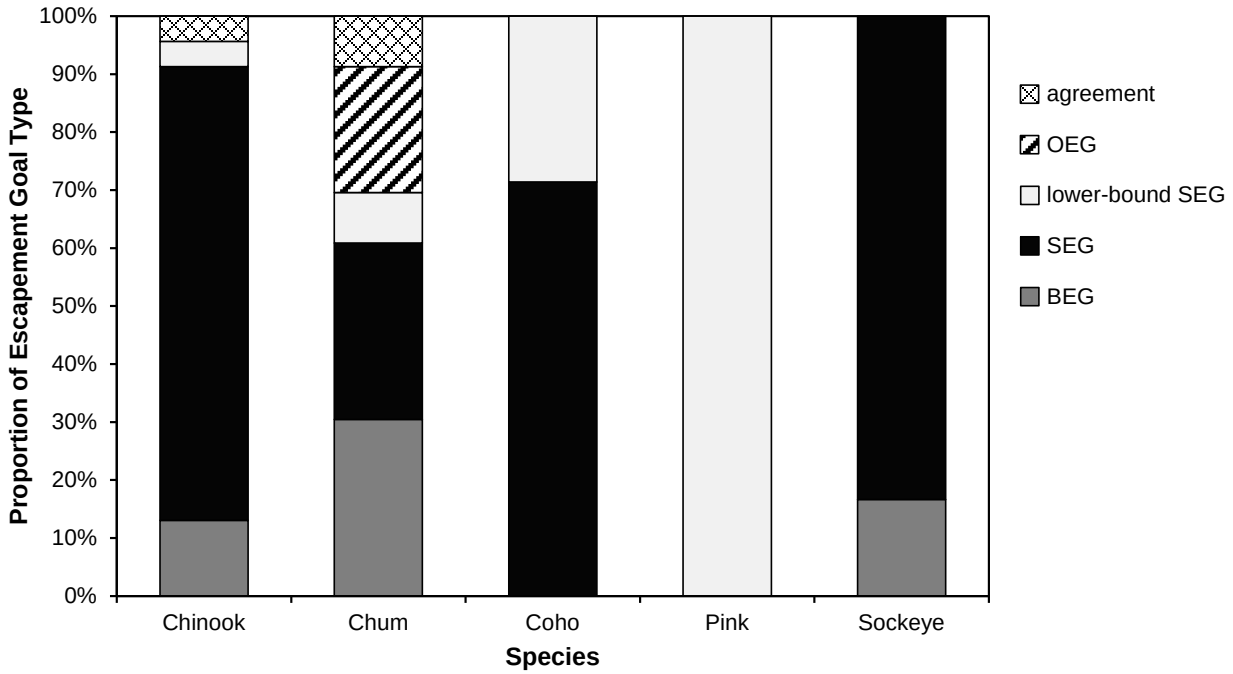

Figure 4.–Proportion of escapement goal types by species for the 63 escapement goals in Arctic-Yukon-Kuskokwim Region.

Note: BEG is biological escapement goal, SEG is sustainable escapement goal, OEG is optimal escapement goal (set by the Alaska Board of Fisheries), and agreement goals are established through international treaties.

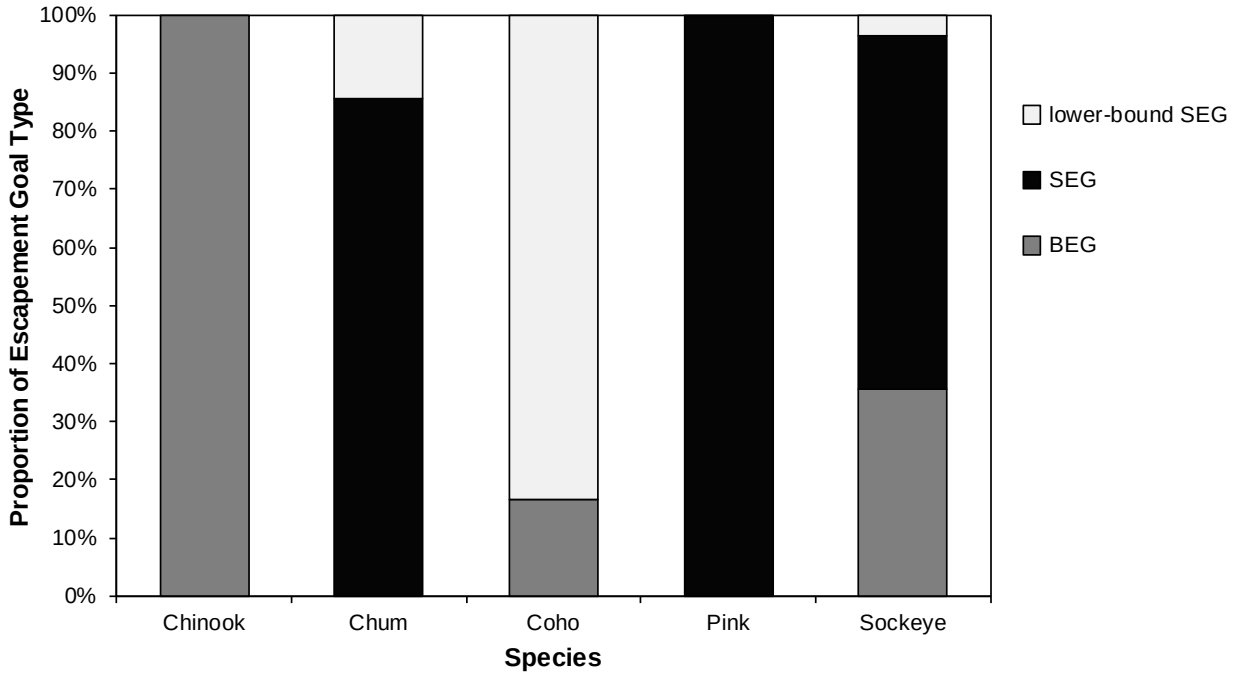

Figure 5.–Proportion of escapement goal types by species for the 51 escapement goals in Westward Region (Alaska Peninsula/Aleutian Islands, Kodiak, and Chignik areas).

Note: BEG is biological escapement goal; SEG is sustainable escapement goal.

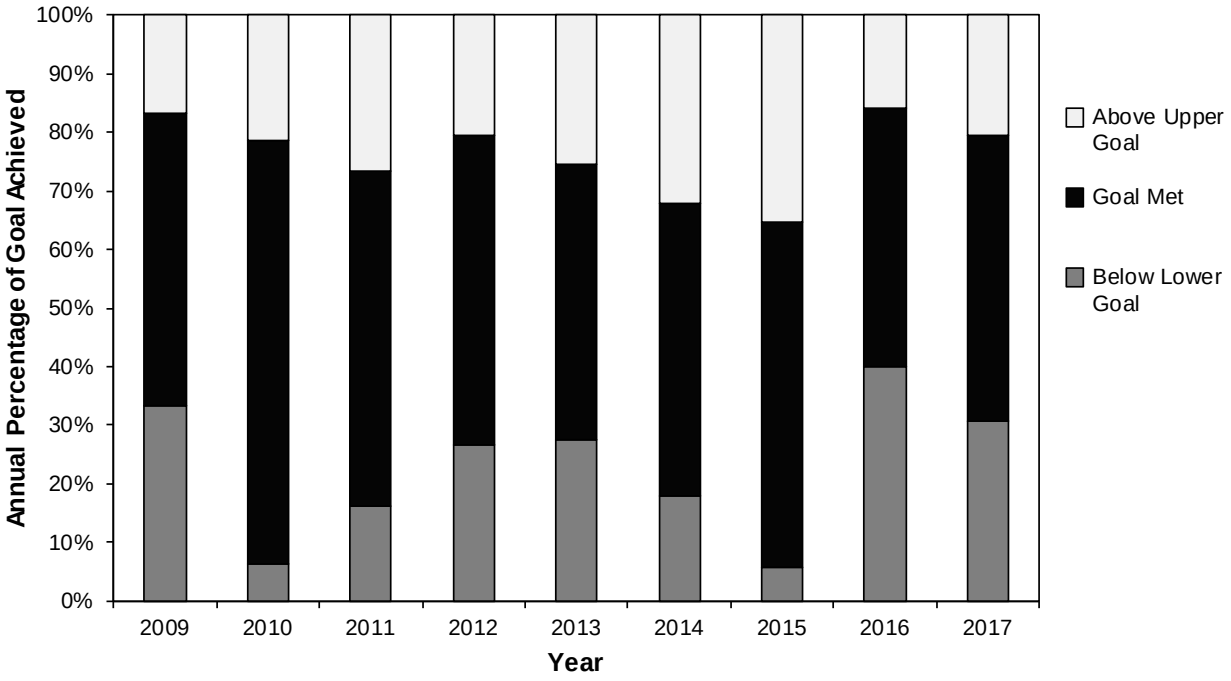

Figure 6.–Southeast Region salmon escapements compared against escapement goals for the years 2009 to 2017.

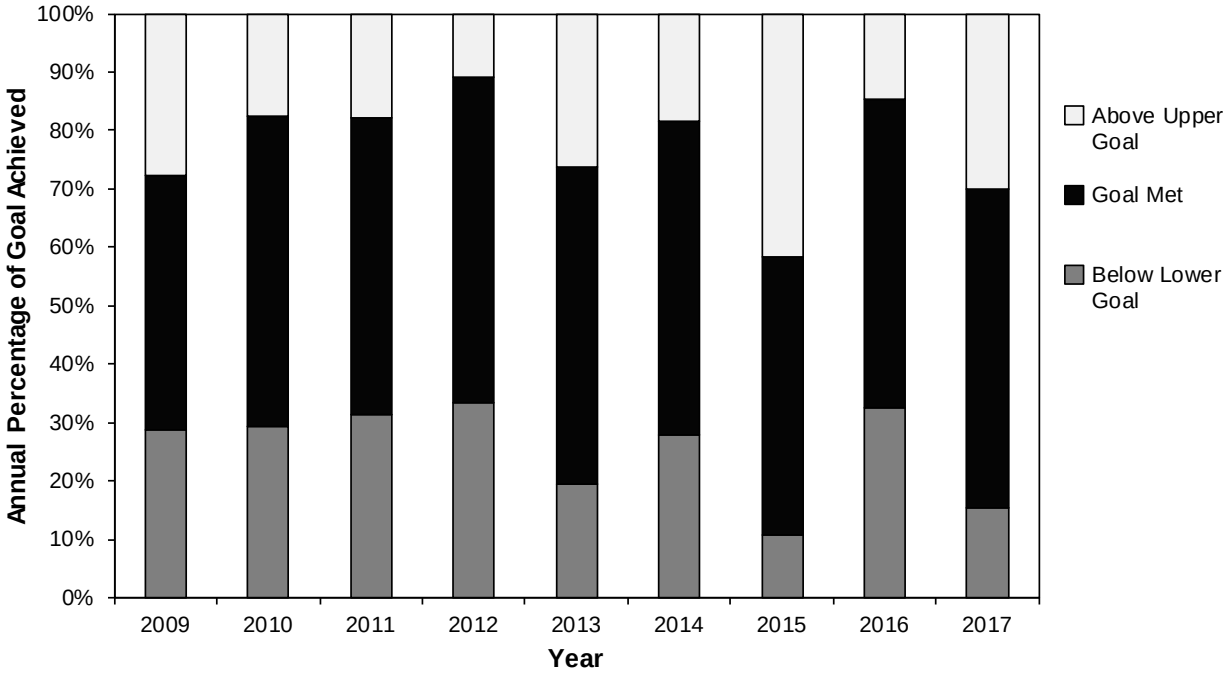

Figure 7.–Central Region (Bristol Bay, Cook Inlet, Prince William Sound/Copper River) salmon escapements compared against escapement goals for the years 2009 to 2017.

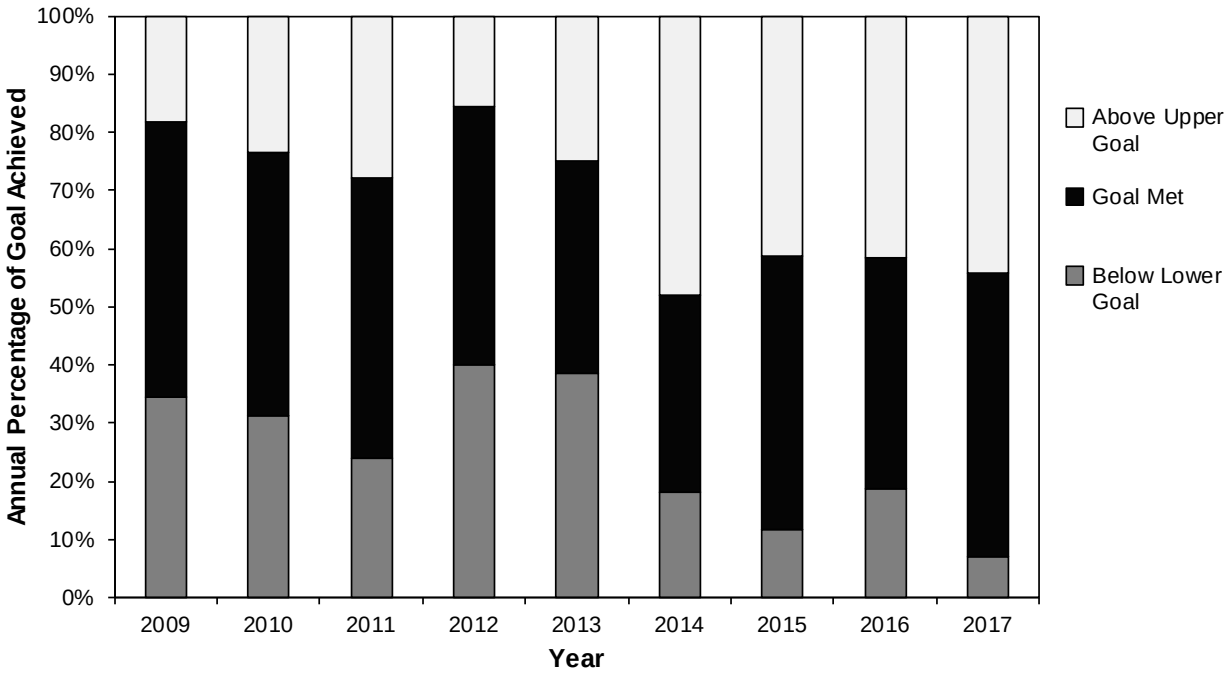

Figure 8.–Arctic-Yukon-Kuskokwim Region salmon escapements compared against escapement goals for the years 2009 to 2017.

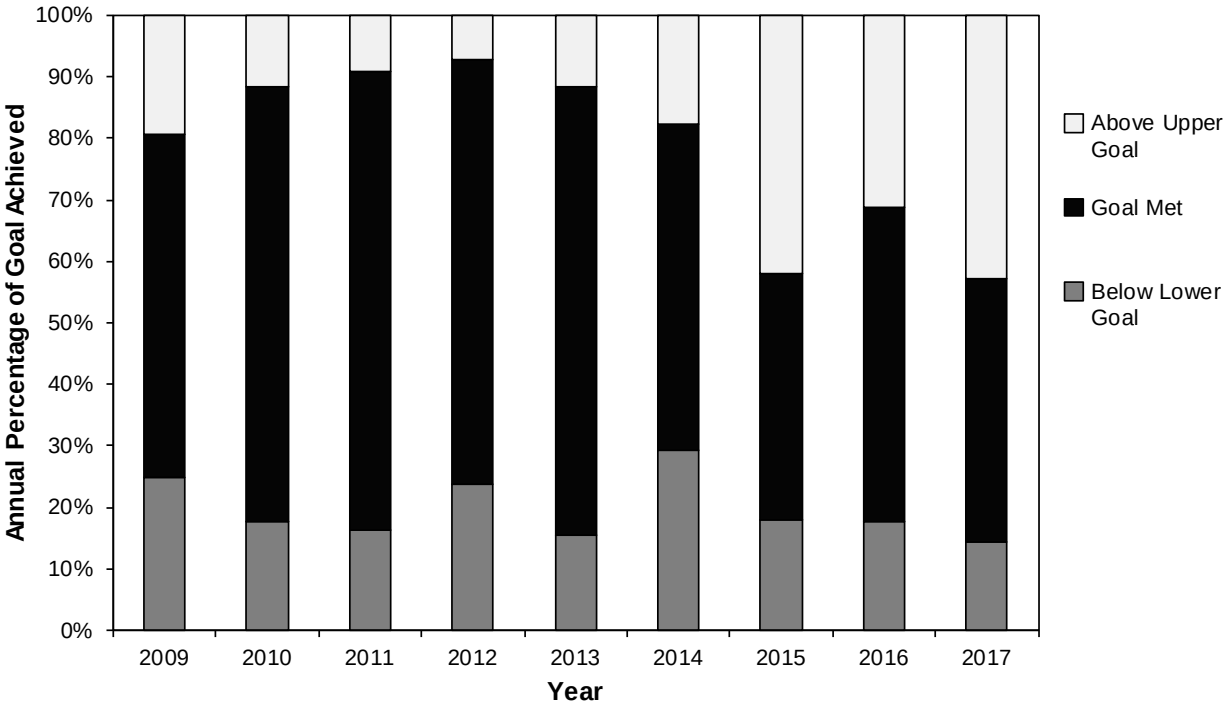

Figure 9.–Westward Region (Alaska Peninsula/Aleutian Islands, Kodiak, and Chignik areas) salmon escapements compared against escapement goals for the years 2009 to 2017.

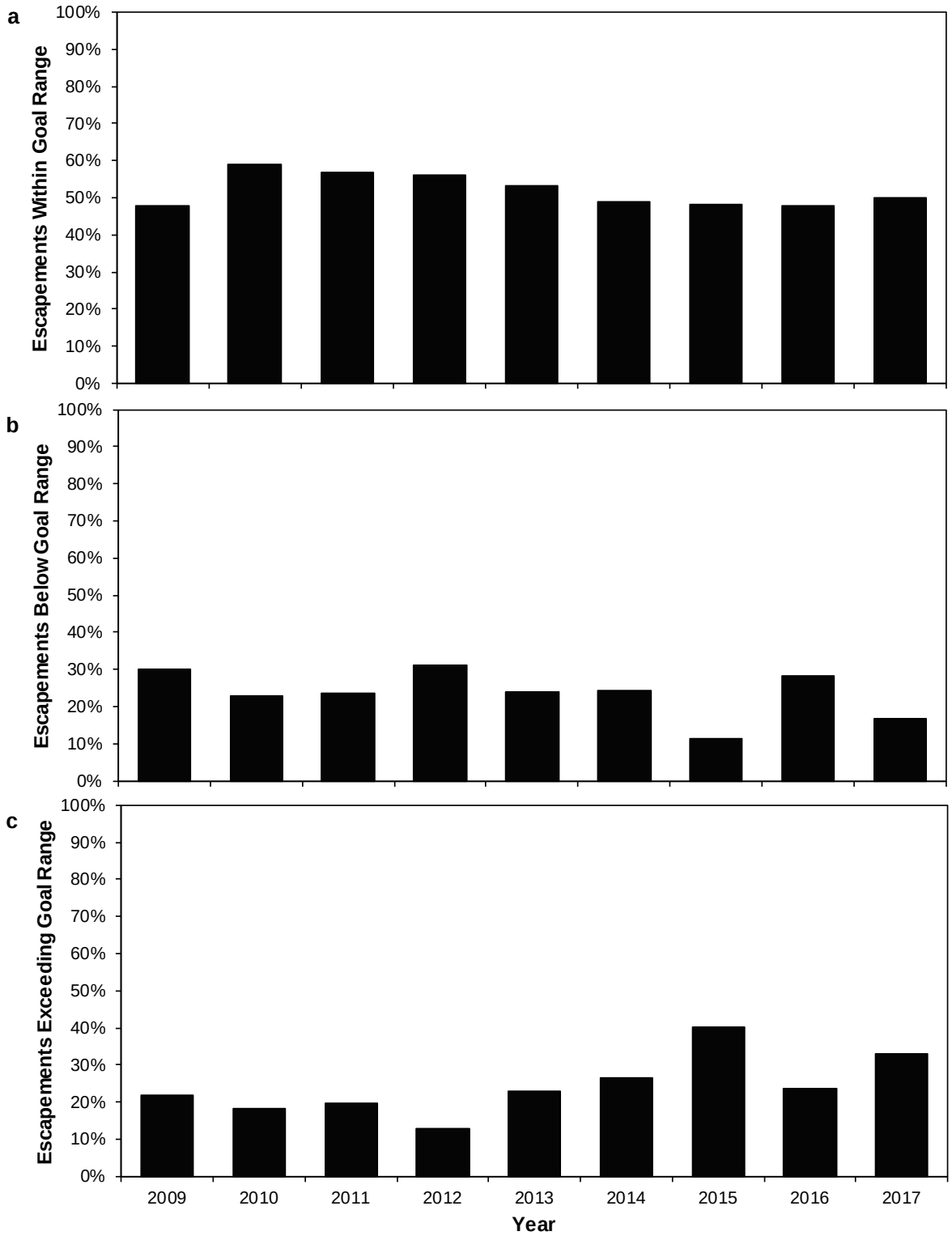

Figure 10.–Statewide summary by year of percentage of escapements that a) met the escapement goal (i.e., within goal range or above lower bound), b) were below lower bound of goal, or c) exceeded upper bound of goal range for the years 2009 to 2017.

APPENDIX A.
ESCAPEMENT GOAL MEMO FOR 2016/2017 BOARD OF FISHERIES MEETING CYCLE

MEMORANDUM

STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

Division of Commercial Fisheries and Sport Fish

TO: Distribution

DATE: 4/19/2017

PHONE: 465-4210 (Kelley)
267-2150 (Brookover)

FROM: Scott Kelley, Director SK
Division of Commercial Fisheries
Juneau

Tom Brookover, Director TB
Division of Sport Fish
Anchorage

SUBJECT: Approval of Final Escapement Goal Recommendations for Selected Lower Cook Inlet, Kodiak, and Upper Cook Inlet Salmon Stocks

---

The purpose of this memo is to provide final approval to include the recommendations found in the reports listed below as Alaska Department of Fish and Game (ADF&G) salmon escapement goals for the Lower Cook Inlet, Kodiak, and Upper Cook Inlet areas.

Otis, E. O., J. W. Erickson, C. Kerkvliet, and T. McKinley. 2016. A review of escapement goals for salmon stocks in Lower Cook Inlet, Alaska, 2016. Alaska Department of Fish and Game, Fishery Manuscript Series No. 16-08, Anchorage.

Schaberg, K. L., M. B. Foster, M. Wattum, and T. R. McKinley. 2016. Review of salmon escapement goals in the Kodiak Management Area, 2016. Alaska Department of Fish and Game, Fishery Manuscript Series No.16-09, Anchorage.

Erickson, J.W., T. M. Willette, and T. McKinley. 2017. Review of salmon escapement goals in Upper Cook Inlet, Alaska, 2016. Alaska Department of Fish and Game, Fishery Manuscript No. 17-03, Anchorage.

The *Policy for the Management of Sustainable Salmon Fisheries* (SSFP; 5 AAC 39.222) directs the department to provide the Alaska Board of Fisheries with reports on status of salmon stocks and salmon fisheries, and identification of escapement goals, at regular meetings for each management area. Escapement goals were evaluated and recommended based on the SSFP and the *Policy for Statewide Salmon Escapement Goals* (5 AAC 39.223). These recommendations have been reviewed and accepted by the respective Regional Supervisors. Oral and written reports were presented to the Alaska Board of Fisheries regarding these escapement goal recommendations at the respective area meetings during the 2016–2017 cycle.

This memo signifies approval and acceptance of these recommendations as ADF&G established salmon escapement goals.

cc: Hasbrouck, Templin, Fleishman, Munro, Bowers, Olson, Taube, Lingnau, Sagalkin, Vania, Erickson, McKinley, Schaberg